

University of Denver

Digital Commons @ DU

Electronic Theses and Dissertations

Graduate Studies

6-1-2009

Peer Victimization, Student Engagement, and School Attendance: Structural Equation Models

Jason Benjamin Dunkle
University of Denver

Follow this and additional works at: <https://digitalcommons.du.edu/etd>



Part of the [Educational Psychology Commons](#)

Recommended Citation

Dunkle, Jason Benjamin, "Peer Victimization, Student Engagement, and School Attendance: Structural Equation Models" (2009). *Electronic Theses and Dissertations*. 173.
<https://digitalcommons.du.edu/etd/173>

This Dissertation is brought to you for free and open access by the Graduate Studies at Digital Commons @ DU. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of Digital Commons @ DU. For more information, please contact jennifer.cox@du.edu, dig-commons@du.edu.

PEER VICTIMIZATION, STUDENT ENGAGEMENT,
AND SCHOOL ATTENDANCE:
STRUCTURAL EQUATION MODELS

A Dissertation

Presented to

the Morgridge College of Education

University of Denver

In Partial Fulfillment

Of the Requirements for the Degree

Doctor of Philosophy

by

Jason Benjamin Dunkle

June 2009

Chair: Dr. Duan Zhang

© Copyright by Jason Benjamin Dunkle

2009

All Rights Reserved

Author: Jason B. Dunkle

Title: PEER VICTIMIZATION, STUDENT ENGAGEMENT, AND SCHOOL ATTENDANCE: STRUCTURAL EQUATION MODELS

Advisor: Dr. Duan Zhang

Degree Date: June 2009

ABSTRACT

Survey data from a study of 6th grade students in Colorado ($n=860$) were used to estimate structural equation models in which peer victimization types were hypothesized to have significant relationships with both student engagement and attendance. Then, student engagement and attendance variables were hypothesized to have significant effects on achievement (measured as grade point average). Student engagement was viewed as a multi-faceted construct, composed of behavioral, cognitive, and emotional aspects. Four different types of peer victimization variables (verbal, physical, exclusion, and intensity) were combined to form a latent measure for peer victimization that was expected to predict absenteeism and student engagement. In addition, student engagement was expected to act as a mediating variable between the peer victimization latent variable and absenteeism. A model treating peer victimization and student engagement as latent variables fit the data well. However, the peer victimization latent variable was not statistically significantly predictive of absenteeism as was hypothesized.

Other paths between endogenous and exogenous variables, although statistically significant, had relatively weak path coefficients suggesting that victimization does not largely impact attendance for the 6th grade students. In fact, the path coefficients between student engagement and attendance were also weak. In conclusion, the relationships

between peer victimization, student engagement, and attendance were simply not as strong as hypothesized. However, the structural equation models did demonstrate that school engagement mediates the effect of peer victimization on attendance and achievement. A suggestion for further study would be to examine the “school avoidance” component of the study; perhaps, an attendance variable would be more significantly impacted by peer victimization for older students who have less parental influence on their daily attendance. In addition, a longitudinal study with more measures of student behaviors across time might better capture the effect of peer victimization on the various school behavior variables.

Keywords: peer victimization, engagement, exclusion, attendance, achievement, bullying, SEM, repeated measures

Acknowledgements

This project would not have been possible without the support and encouragement of many different people. I would like to acknowledge the assistance provided by each of the members of my dissertation committee: Dr. Enid Cox, Dr. Kathy Green, Dr. Marty Tombari, and Dr. Duan Zhang. Thanks to Dr. Cox for serving as the outside chair for my dissertation defense. I owe a debt of gratitude to Dr. Green as well; thanks for all of the edits and suggestions for improvement, as well as encouragement to keep moving through the process. Also, thanks in particular to Dr. Tombari for being a great sounding board and providing the impetus for the project. Lastly, thanks to Dr. Zhang for providing support for the specific modeling methods used for the research, and for serving as my advisor. All of your individual contributions worked together to help me succeed. I truly appreciate all of your time and your attention to making sure this project went smoothly. Your insights and perspectives helped to strengthen my own learning. Thanks also to Dr. Tom Paskus for inviting me into the Quantitative Research Methods Program at the University of Denver. Without your interest in me, I would have never started this endeavor.

Finally, I wish to thank my family. My parents, Cheryl and Wayne, are the best. Thanks for your encouragement; you've always pushed me to accomplish more. To my children, Kyler and Madison – thank you for your patience and understanding. Lastly, I extend my love and gratitude to my wife, Cindy – your endless unconditional support and confidence in me provided the strength to persevere.

Table of Contents

	Page
CHAPTER ONE	1
Introduction.....	1
Statement of the Problem	4
Purpose of the Study	4
Research Questions	7
Hypotheses	9
Significance of the Study	11
Definitions of Terms.....	12
Delimitations of the Study	14
Organization of the Study	16
Review of the Literature	16
Peer Victimization	17
Absenteeism	29
School Engagement.....	32
Structural Equation Modeling.....	36
Summary	38
Expectations of Study	39
CHAPTER TWO.....	40
Method	40
Definition of Population and Sample	45
Instrumentation.....	48
Validity	49
Reliability	50
Data Collection	51
Variables Studied.....	52
Dependent Variables	53
Independent Variables	54
Data Integrity	56
Procedures	58
Summary	61
CHAPTER THREE	63
Results	63
Research Question One	63
Research Question Two	66
Research Question Three	70
Research Question Four	75
Research Question Five	78
Research Question Six.....	79
Research Question Seven.....	81
Research Question Eight.....	84
Research Question Nine	88
Research Question Ten	90
Research Question Eleven.....	92
Research Question Twelve	101
Research Question Thirteen	107

	Page
CHAPTER FOUR	120
Summary of Study	120
Major Findings.....	121
Descriptive Research Questions.....	121
Correlation Questions	122
Regression Questions	124
Structural Equation Questions	125
Summary of Conclusions	126
Implications.....	127
Limitations	128
Recommendations for Further Study.....	130
Reflections	132
Final Summary.....	134
REFERENCES.....	136
APPENDICES	144
Appendix A	144
Appendix B	146

List of Tables

	Page
Table 1. Sample Categorical Variable Frequencies and Percentages	48
Table 2. Cronbach's alpha coefficients for survey items	51
Table 3. Description of Variables Included in Study	56
Table 4. Descriptive Statistics - Fall Peer Victimization Experiences by Victim	65
Table 5. Descriptive Statistics - Spring Peer Victimization Experiences by Victim	65
Table 6. Descriptive Statistics for Fall Peer Victimization Intensity by Victims	67
Table 7. Descriptive Statistics for Fall Peer Victimization Intensity by Totals	68
Table 8. Descriptive Statistics for Spring Peer Victimization Intensity by Victims	69
Table 9. Descriptive Statistics for Spring Peer Victimization Intensity by Totals	69
Table 10. Descriptive Statistics for Fall School Engagement (Behavioral)	71
Table 11. Descriptive Statistics for Fall School Engagement (Cognitive)	72
Table 12. Descriptive Statistics for Fall School Engagement (Emotional)	72
Table 13. Descriptive Statistics for Spring School Engagement (Behavioral)	73
Table 14. Descriptive Statistics for Spring School Engagement (Cognitive)	74
Table 15. Descriptive Statistics for Spring School Engagement (Emotional)	74
Table 16. Pearson Correlation for Frequency of Victimization & Absenteeism (Fall)	76
Table 17. Pearson Correlation for Frequency of Victimization & Absenteeism (Spring) ..	77
Table 18. Pearson Correlation for Intensity of Victimization & Absenteeism (Fall)	78
Table 19. Pearson Correlation for Intensity of Victimization & Absenteeism (Spring) ..	79
Table 20. Pearson Correlation for Intensity of Victimization & Absenteeism (Fall)	80
Table 21. Pearson Correlation for Intensity of Victimization & Absenteeism (Spring) ..	81
Table 22. Pearson Correlations for Intensity of Victimization & Engagement (Fall)	82
Table 23. Pearson Correlations for Intensity of Victimization & Engagement (Spring) ..	83
Table 24. Victimization as Independent Variables Regression Equation Results	87
Table 25. Coefficients for Regression Equation for Dependent Variable of Absenteeism and Victimization Constructs as Independent Variables	87
Table 26. Engagement as Independent Variables Regression Equation Results	89
Table 27. Coefficients for Regression Equation for Dependent Variable of Absenteeism	

and Engagement Constructs as Independent Variables	89
Table 28. Victimization Variables as Independents Regression Equation Results.....	91
Table 29. Coefficients for Regression Equation for Dependent Variable of Total Engagement and Four Victimization Constructs as Independent Variables.....	92
Table 30. Correlation Coefficients between variables used in structural equation models (Fall data).....	96
Table 31. Correlation Coefficients between variables used in structural equation models (Spring data).....	97
Table 32. Fit Indices for Hypothesized Measurement Model	99
Table 33. Hypothesized latent constructs for peer victimization and school engagement (spring data)	101
Table 34. Standardized Path Coefficients and Associated P-values: Hypothesized Structural Model.....	104
Table 35. Fit Indices for Structural Model 1 and Adjusted Structural Model 1	106
Table 36. Standardized Coefficients and Associated P-Values: Fall Grouping	110
Table 37. Standardized Coefficients and Associated P-Values: Spring Grouping	112
Table 38. Standardized Coefficients Adjusted Model: Fall Grouping.....	115
Table 39. Standardized Coefficients Adjusted Model: Spring Grouping.....	117
Table 40. Fit Indices for Structural Model and Adjusted Model	119

List of Figures

	Page
Figure 1. Buhs, Ladd, and Herald Structural Equation Model	42
Figure 2. Hypothesized Structural Equation Model.....	43
Figure 3. Total Absence Variable Distribution.....	85
Figure 4. Total Absence Variable Log Transformed	86
Figure 5. Total Engagement Variable Distribution.....	91
Figure 6. Hypothesized Measurement Model (Spring)	93
Figure 7. Measurement Model with Standardized Path Coefficients (Spring).....	103
Figure 8. Hypothesized Structural Equation Model with Standardized Coefficients	101
Figure 9. Adjusted Structural Equation Model with Standardized Coefficients	105
Figure 10. Hypothesized Structural Equation Controlling for Fall Data.....	109
Figure 11. Fall Group Structural Equation Model with Standardized Coefficients.....	111
Figure 12. Spring Group Structural Equation Model with Standardized Coefficients ...	113
Figure 13. Adjusted Structural Equation (Fall Group).....	116
Figure 15. Adjusted Structural Equation (Spring Group).....	118

CHAPTER ONE

Introduction

Peer victimization in public schools is a pressing issue in modern education. Certainly, peer victimization – also known as peer harassment, peer abuse, or bullying – is not new to schools. However, recently, with the increased concern about violence in schools, the topic has garnered a great deal of research. After the shootings at Columbine and other high-profile school violence episodes, educators and the public at large have become interested in studying the danger that peer victimization can cause for both the victims themselves and the attackers as well. Researchers are scrambling to understand the consequences of peer victimization for both victim and attacker as well as for students and schools at large, and clearly, the impacts are physical, psychological, and even academic in nature. While the literature on peer victimization has grown significantly over the last twenty years, much of the research has focused on the causes of peer victimization, the effect of prior peer victimization on the psyche of violent offenders (such as in the case of school shooters), and the effectiveness or ineffectiveness of peer victimization prevention programs. However, there are many other facets to the peer victimization problem that need to be examined.

Peer victimization is bad for students. Any type of peer harassment, physical abuse, or exclusion impacts the targeted students in a number of negative ways. As studies have shown, peer victimization causes numerous psychological effects on

children, such as lowered self-esteem, fear, and poor attitude (Paul & Cillessen, 2003). The consequences of these psychological effects appear to be many, ranging from lower attendance rates and decreased student achievement to increased incidence of violence and juvenile crime (Banks, 1997; Schwartz et al., 1997). The harm caused by peer victimization does not stop when students become adults. Children who victimize others are more likely to become violent adults, while victims of peer victimization often suffer from angst, poor self-esteem, and depression well into adulthood (Banks, 1997; NRCSS, 1999). In other words, peer victimization has immediate and long-term negative consequences for the affected youth.

What researchers don't know are the exact relationships between the negative psychological impacts of the various forms of peer victimization and other linked behaviors displayed by the victimized youth, such as actual school attendance, school engagement, and school achievement. A need in the area of peer victimization research is to look closely at the immediate effects of peer victimization on students, specifically their school attendance. Peer victimization most likely causes both direct and indirect declines in student achievement, but the true associations are unclear. Certainly, poor attendance leads to lowered student achievement. So, if a clear connection between perceived victimization among students and their subsequent attendance can be made, efforts to moderate truancy of victimized students would be warranted.

Although social scientists have studied for years the variety of reasons students skip school, the role played by peer victimization in truancy has surprisingly been ignored. The following statistics suggest that more research on the effect of peer victimization on school attendance needs to be done: 7% of eighth-graders stay home at

least once a month because of the fear of being victimized (Banks, 1997); in our nation, 160,000 students miss school every day due to fear of attack by another student (Fried & Fried, 1996); at least 20% of students are scared to go to school (Garrity et al., 1997); and, 14% of eighth- through 12th-graders and 22% of fourth- through eighth-graders surveyed reported that peer victimization caused them to learn less effectively (Hoover & Oliver, 1996). All of these studies suggest there exists a victimization-truancy link, yet none of these studies explored that relationship in depth.

So, is it true that peer victimization is causing such angst in the victims that their attendance suffers? Initial research suggests a connection, but to what extent? Is the relationship between victimization and attendance direct, or is it moderated by another variable? Although research reports that students are missing school because of victimization, a possible causal relationship has not been tested. Logically, those students who perceive themselves as being victimized to larger extents may miss the most school. Possibly, the kinds of victimization students face may impact the amount of school missed by victims as well. In other words, maybe those children who face physical violence miss more school than those who face verbal attacks or peer exclusion. The type and intensity of harassment received from the attacker may influence the psychological impact on the victim, which in turn may mediate the overall effect of the peer victimization on academic achievement. Prior to this proposed research project, attendance rates and their relationship with victimization frequency and intensity, as well as victimization type have not been studied. The exact relationships between peer victimization and attendance are uncertain, but understanding these relationships could

help teachers, parents, and administrators make positive changes in schools to help the victims.

Statement of the Problem

Given these possible connections between peer victimization and student attendance, and subsequently student achievement, more research is needed to allow educators to make informed decisions regarding effective peer victimization programs and policies. If a clear connection can be made between the effects of peer victimization on victims and their attendance, then more consideration needs to be made towards preventing and diminishing peer victimization, as well as providing a sense of adult advocacy and support for dealing with the peer victimization incidents for the identified students. In particular, school personnel might be made aware that victimized students have poor attendance, and they can then focus efforts to lower victimization-caused truancy. This would, in effect, be a direct strategy to improve student achievement and a legitimate and necessary school improvement goal to be included in school improvement planning in the future. Good attendance is necessary for academic achievement, and anything educators can do to promote students attending school at higher rates deserves attention.

Purpose of the Study

There is clearly a link between attendance and achievement (Beran, 2009; Boulton et al., 2008), and several studies suggest a connection between peer victimization levels and attendance as well (Banks, 1997; Fried & Fried, 1996; Garrity et al., 1997; Hoover & Oliver, 1996). Certainly, research on peer victimization has demonstrated numerous negative psychological impacts. The purpose of this research study was to

determine if these negative impacts lead to other problems for the victimized youth, specifically decreased school attendance. The severity of victimization from peer victimization should logically increase the number of school absences for the victims. In addition, a school engagement component was included in this study to determine whether a student's school engagement levels mediate the impact of peer victimization on attendance. If peer victimization leads either directly or indirectly to lowered attendance rates, then understandably, school achievement is negatively affected as well. Efforts to control peer victimization in schools could be viewed as direct interventions to improve student achievement.

Buhs, Ladd and Herald (2006) and Buhs and Ladd (2001) have examined the relationships between victimized youth and their achievement. In addition, they have included school avoidance as a mediating variable. However, students' specific attendance rates were not a focus of their research, and their variables of peer victimization and achievement do not work to answer the questions of interest to this proposed study.

To answer the proposed research questions for this study, the fit of a latent variable model similar to the one examined by Buhs, Ladd and Herald (2006) was evaluated. However, the peer victimization severity and peer victimization types were clearly denoted as separate variables to form the latent variable construct for peer victimization. In addition, types of peer victimization and severity of victimization were self-reported by students as opposed to teacher-nominated victimization. Finally, the school avoidance variable was actual student attendance rates, rather than perceived

desire to miss school as in the Buhs, Ladd and Herald study. Different treatment of each of these variables served to answer the questions of interest for this research project.

This study contributes to the larger body of research on peer victimization. Unique to this study was the use of self-reported victimization as a measure for peer victimization. Much of the prior research uses teacher-reported identification of victims. This procedure assumes that the teacher in a classroom has a better feel for victimization than do the victims themselves. Going directly to the primary source and asking for personal experience around peer victimization should be a better method for assessing which students are real sufferers from peer victimization. Another purpose of this study was to identify children who have varying levels of school absences and to relate this to their experiences of peer victimization. A connection between peer victimization and school absenteeism explains that the more school absences a child has, the more likely he or she has experienced peer victimization. In short, those facing more frequent peer victimization incidents may have poor attendance rates. Logically, these poor attendance rates have in turn been found to lead to declining academic achievement.

In addition, truant youths often commit crimes (Garry, 1996). Thus, it behooves any serious effort to reduce or prevent juvenile delinquency to include some aspect of truancy reduction as well. Although social scientists for years have studied a variety of reasons why kids skip school, the role played by peer victimization in truancy has not been explored sufficiently. The problem addressed in this research study focused both upon establishing the existence of a peer victimization-truancy link and upon understanding the nature of that link. This knowledge will inform and enhance efforts to

reduce truancy and, ultimately perhaps, reduce youth crime and increase student achievement.

Research Questions

This study addressed the following overriding question: What is the relationship between peer victimization in schools and absenteeism?

More specifically, using pre-existing, longitudinal data, 13 research questions were considered to answer the larger research interest when completing this study:

- (1) What frequencies of peer victimization behaviors do 6th grade students experience as middle school students?
- (2) What intensity of peer victimization behaviors do 6th grade students experience as middle school students?
- (3) What are the levels of school engagement for 6th grade students in middle school?
- (4) What are the relationships between frequency of each of the three types of self-reported peer victimization in schools and absenteeism?
- (5) What is the relationship between intensity of self-reported peer victimization in schools and absenteeism rate?
- (6) What are the relationships between levels of each of the three types of self-reported school engagement in schools and absenteeism?
- (7) What are the relationships between frequencies of each of the three types of self-reported peer victimization and the levels of each of the three types of self-reported school engagement?
- (8) Does the frequency of victimization (by victimization type) and victimization intensity for affected youths predict their subsequent absenteeism?

- (9) Do the levels of each of the three types of self-reported school engagement behaviors predict subsequent absenteeism?
- (10) Does the frequency of victimization (by victimization type) and victimization intensity for affected youths predict total school engagement?
- (11) Does treatment of the peer victimization and school engagement variables as latent constructs rather than direct measurements serve to provide a measurement model with adequate fit?
- (12) Does treatment of peer victimization, student engagement, attendance, and achievement variables different from the study by Buhs, Ladd and Herald (2006) serve to provide a measurement model with adequate fit?
- (13) Does a structural equation model controlling for the fall survey data by using multiple group analysis, with the same latent treatment of the peer victimization and school engagement variables, demonstrate good model fit?

Ultimately, it was the intent of this study to create a conceptual linear model combining the victimization, engagement, attendance and achievement variables and assess whether the model fits the data. The many research questions were included to provide a framework by which to evaluate the complex interrelationships between the variables. The studies examining the effects of peer harassment on victim's psychological well-being and those examining the effects of peer harassment on school success have emerged as two different studies. It is unclear, for example, whether peer harassment has independent effects on both psychological and school adjustment, or whether school difficulties are consequences or causes of adjustment problems related to victim status. It was the researcher's belief that attendance and peer victimization are interrelated.

Hypotheses

The purpose of this research study was to evaluate the connection between peer victimization and absenteeism. The researcher hypothesized that students do face significant levels of peer victimization in schools. In addition, it was hypothesized that there is a significant correlation between self-reported peer victimization for sixth grade students and their absenteeism rates. It was believed that the level of self-reported peer victimization affects levels of absenteeism and/or school engagement. In other words, as victimization levels increase for individual students, those students have more absences and they become less engaged in their schoolwork. As stated earlier, it was hypothesized that school engagement is a mediating variable between victimization and absenteeism. And, both school engagement and absenteeism have direct effects on school achievement. Lastly, it was hypothesized that a structural equation model would fit the relationships suggested between the variables; prior research with different treatment of the variables indicated adequate fit, but the data used for this particular study included self-reported victimization rates, specificity around peer victimization types, inclusion of a peer victimization intensity variable, and a unique, more adequate order to the variables in the measurement model.

More specifically, to address the actual research questions that guide this study, the following null hypotheses were evaluated:

H₀1: Sixth grade middle school students do not experience significant frequencies of peer victimization behaviors.

H₀2: Sixth grade middle school students do not experience significant levels of peer victimization behaviors.

H₀₃: Students do not have statistically significantly differing levels of engagement in the three subtypes of engagement (behavioral, cognitive, emotional).

H₀₄: Correlations between each of the three types of self-reported peer victimization in schools and absenteeism are not statistically significant at the .05 level.

H₀₅: The correlation between intensity of self-reported peer victimization in schools and absenteeism rate is not statistically significant at the .05 level.

H₀₆: Correlations between each of the three types of self-reported school engagement in schools and absenteeism are not statistically significant at the .05 level.

H₀₇: Correlations between frequencies of each of the three types of self-reported peer victimization, victimization intensity, and the levels of each of the three types of self-reported school engagement are not statistically significant at the .05 level.

H₀₈: There is no statistically significant relationship between a linear combination of the four different types of predictor variables, including frequency of victimization and victimization intensity, and the dependent variable of student absenteeism.

H₀₉: There is no statistically significant relationship between a linear combination of the predictor variables of the levels of each of the three types of self-reported school engagement and the dependent variable of absenteeism.

H₀₁₀: There is no statistically significant relationship between a linear combination of the predictor variables of frequency of victimization (by victimization type), victimization intensity and the dependent variable of total school engagement.

H₀₁₁: A measurement model treating the peer victimization and school engagement variables as latent constructs provide a good-fitting measurement model.

H₀12: A structural equation model, similar to the one proposed by Buhs, Ladd and Herald (2006), but with different treatment of the victimization and engagement variables, does not provide a good-fitting measurement model.

H₀13: This same structural equation model, modified to control for the fall survey data, will not provide a good-fitting measurement model.

Significance of the Study

During the researcher's career as a public school teacher for the last 14 years, many legislative acts have impacted his teaching and the students' learning, but no single initiative has had as much influence as the No Child Left Behind Act passed by Congress in 2001 and signed into law on January 8, 2002 by President George W. Bush. When it was introduced as a new initiative to increase student learning and narrow learning gaps between different student groups, the general teaching population embraced the concept. In all states across the country, NCLB mandated that students must meet performance standards in academic areas, specifically math and reading.

The No Child Left Behind Act (NCLB) 2002 has refocused and refined current educational reform efforts. Student achievement based on test-performance outcomes has become critical for students, teachers, and administrators. NCLB uses one measurement as its primary indicator for student success, Adequate Yearly Progress (AYP). AYP is a measurement of how each school and each school district progresses towards the goal of all students being at grade-level performance through the goal year of 2014. The specific goal for 2014 is that "All students will be proficient in reading and math" (Colorado Department of Education, 2008). Test results now determine the vast majority of school ratings, and these school ratings, given in the form of AYP reports, can determine school

and school district funding as well as the overall reputation of the schools and school districts. In order to do well on various achievement tests mandated to ensure accountability, students must consistently attend school. Teachers need students in class so that they can teach them, and students need to be in class in order to learn. Student attendance is a key to success in modern education.

If a clear connection between peer victimization levels and attendance rates can be determined, school districts and individual school administrators can work to provide a safer learning environment for students. A renewed focus on peer victimization prevention could ultimately lead to improved learning and achievement for students in this modern education era as defined by the NCLB Act. Improved indicators of achievement, such as test scores and graduation rates, will help districts to keep their funding so they can continue to implement successful programming for students.

In addition, students have the right to attend school without fear. Peer victimization affects achievement, self-esteem, and the enjoyment of school overall. Schools must make it a focus to provide a safe learning environment for the students who attend. If, in fact, students are missing significant amounts of school time because of their fear of being victimized, peer victimization is a problem that needs to be addressed by schools and school districts immediately. Our educational goals cannot be met as a nation if our students are scared to go to school at significant rates.

Definition of Terms

Adequate Yearly Progress (AYP).

AYP is the primary accountability measure of the Federal No Child Left Behind (NCLB) Act. Achieving AYP requires meeting specific reading and math achievement

targets as well as test participation rates for each of the elementary, middle, and high school levels (Colorado Department of Education, 2008).

Bully.

A bully is a student who engages in peer victimization behaviors, often for the need to feel power and control over others (Banks, 1997).

Bullying.

See peer victimization.

No Child Left Behind Act (NCLB).

A federal law established on January 8, 2002 designed to improve student achievement. NCLB established a renewed focus on accountability for results and an emphasis on change based on scientific research. Assessment programs and school report cards were mandated for all states (U.S. Department of Education, 2003).

Peer Victimization.

“Any repeated negative activity or aggression intended to harm or bother someone who is perceived by peers as being less physically or psychologically powerful than the aggressor(s)” (Glew et al. 2005).

Student Engagement.

Student Engagement is a variable defined to help determine why some students do better in school than others: an attempt at quantifying their interest, effort, and attitude. Students with higher engagement levels in the classroom have characteristics while at school that improve their functioning in the school setting (Shernoff & Schmidt, 2008). Recent studies of school engagement have treated engagement as a multi-faceted

construct, including the areas of behavioral, cognitive, and emotional engagement (Espelage & Holt, 2001).

Truant.

Truancy is defined as intentional but unauthorized absence from compulsory schooling. This is different from an "excused" absence, such as one related to illness or injury. Under Colorado law, "truant" is defined as four or more unexcused absences in a single month, or ten unexcused absences in a year (Colorado Department of Education, 2008). Although truancy is a major focus for school districts, this research project will treat absenteeism as a construct that includes both trancies and excused absences. It is believed that students who miss school due to fear of victimization may be able to get parental permission to be absent, so even though the absence is "Excused," it still reflects that the student did not want to be at school.

Victim.

Those students targeted by the peer victimization behaviors, often are characterized by anxious, insecure, cautious, and/or suffering from low self-esteem (Banks, 1997). Different from other studies of peer victimization, this study will treat victimization as three different types: exclusion, physical abuse, and verbal abuse.

Delimitations of the Study

Results of this study are delimited by the following:

1. The data from this study were limited to Adams County 12 Five Star Public Schools.
2. The data from this study were limited to 6th grade (classified as middle school in Adams County 12) students.
3. The data from this study were only for the 2007-2008 school year.

These delimitations speak to the generalizability of the results; however, it was assumed that the characteristics of the Adams County 12 Five Star Public Schools used to generate the data are similar enough to other districts with truancy and peer victimization problems that findings can be generalized to others.

Because of the repeated measures nature of the data used for this study, some data were lost. Some students measured in the fall semester, were dropped from analysis because they were not able to participate in the spring survey, and conversely, some students measured in the spring semester did not have data from the fall. Still, the data collection design should allow for a clearer understanding of causal relationships because changes over time to students' victimization levels and school attendance can be analyzed.

In addition, the researcher used self-reported victimization data. This assumes that the students are both aware of and honest about their levels of victimization. Students may be inclined to either over- or under-exaggerate victimization levels for many reasons. For instance, a student may feel it necessary to not report peer victimization for fear of retaliation from the bullies themselves. Or, conversely, a student may report more incidences of peer victimization looking for extra attention. Ultimately, it was the researcher's belief that the individual student is the best source for data regarding their own personal levels of experienced and perceived peer victimization even though victimization levels cannot be perfectly measured. The merits of self-reported peer abuse will be discussed more in the literature review.

In addition, the researcher assumed the survey was given in a manner conducive to getting the best results. Hopefully, students were encouraged to complete the survey

honestly and candidly. Additionally, the researcher assumed children had adequate time to complete the survey with integrity, and those adults involved in the administration of the survey followed the guidelines equally.

Organization of the Study

This study used existing data from a survey distributed by the Colorado Foundation for Families & Children. Research questions guided the use of correlation and regression analyses to guide the exploration of the nature of the peer victimization – student attendance link. Ultimately, a latent variable model similar to the one explored by Buhs, Ladd, and Herald (2006) was assessed, with the major difference being the treatment of the variables. Structural equation modeling allows for evaluation of a model and changes based on fit indices and theory; consequently, other models emerged from the original hypothesized model analyses.

Review of the Literature

The focus of this review is to examine the nature of peer victimization, the types and prevalence of peer victimization while also considering the impact of peer victimization on students' lives. The hypothesis of the researcher is that peer victimization has negative impacts on school attendance, and possibly, these impacts are mediated by school engagement. Ultimately, missed school negatively affects student achievement. Thus, it is the intention of this review to include a thorough examination of current understandings of trends in school attendance as well as school engagement. Exploring the possible relationships between victimization, engagement, and attendance will be the intention of the data analysis.

Peer Victimization

Through the process of gathering information from many studies and summaries of the research on peer victimization, it became very apparent that the Norwegian researcher, Dan Olweus, is widely regarded as the expert and pioneer in the world of research on peer victimization and its effects in schools. His name is cited in almost every major study or article addressing the topic. Interestingly, many of the published research articles are merely summaries of prior work, and often they are prescriptions from larger organizations on identification and prevention of peer victimization in schools. However, clear themes around the causes and effects of peer victimization emerge as one begins to examine peer victimization in more depth.

What is peer victimization?

Many researchers have attempted to define peer victimization, and much of the conducted research has been done using various assumed constructs for peer victimization. In fact, the term peer victimization has many synonyms that are used in the research; peer harassment, peer abuse, and bullying to name a few. All of these widely accepted terms for peer victimization have slightly different connotations, and there is no universally accepted definition of peer victimization. However, Olweus (1993) might have crafted the most widely accepted definition of peer victimization for use in educational research, and this definition will serve to help form the construct for purposes of this research study:

A student is being victimized when he or she is exposed, repeatedly and over time, to negative actions on the part of one or more other students... It is a negative action when someone inflicts, or attempts to inflict, injury or discomfort upon another – basically what is implied in the definition of aggressive behaviour (sic). Negative actions can be carried out by words

(verbally), for instance, by threatening, taunting, teasing, and calling names. It is a negative action when somebody hits, pushes, kicks, pinches or restrains another – by physical contact. It is also possible to carry out negative actions without use of words or physical contact, such as making faces or dirty gestures, intentionally excluding someone from a group, or refusing to comply with another person's wishes. (p. 9)

As made clear by Olweus, peer victimization can take many different forms; it can be physical, verbal, or even relational (when a student is excluded or ostracized by others). This study will utilize a three-faceted construct that includes each of these types of victimization. Regardless of the forms it may take, the one agreed upon element of peer victimization by all researchers is the fact that it most likely will lead to negative psychological and behavioral effects on the victims. In addition, the peer victimization acts must be repetitive. A single incident of attack does not serve as peer victimization, but rather many attacks over time form peer victimization. All studies on peer victimization utilize a definition of the construct that includes multiple attacks on the victim. Lastly, not implicit to the above definition, Olweus (1993) saw an imbalance of power to be a major component of peer victimization. In other words, the strong pick on the weak. There is a social order established in our schools with an imbalance of power between students that leads to the peer victimization behaviors and their various impacts on victims.

Other definitions for the construct of peer victimization do exist. The National Safe Schools Partnership has proposed federal legislation that would effectively define peer victimization and harassment for anti-bullying programming and appropriate punishment purposes as the following:

Conduct that adversely affects one or more students, depriving them of access to educational opportunities or benefits provided by their schools...

including conduct that is based on a student's actual or perceived race, color, national origin, sex, disability, sexual orientation, gender identity, or religion. (NSSP, 2007)

This definition of peer victimization includes a school effect component as well as a harassment element. Used to identify peer victimization in schools, the NSSP crafts a broad definition that deals with the many ways an attacker can pick on a victim including race, sex, religion, etc. This definition of peer victimization may be more appropriate for use in school research because it directly addresses the fact that victimized youths experience a negative impact on their schooling. The NSSP is attempting to construct a definition that can be used to evaluate school programs aimed at defeating peer victimization behavior in schools.

Perhaps the definition most pertinent to this proposed study in the current literature comes from Colorado State Law (because of the location of the data collection): “Any written or verbal expression, or physical act or gesture, or a pattern thereof, that is intended to cause distress upon one or more students” (Colo. Public Act No. 02-119, 2002). This understanding of peer victimization is clear and concise, and many school policies and programs addressing peer victimization have been crafted using this definition. However, this definition does not include the most recent type of peer victimization – cyberbullying – that is the use of technology to intimidate or cause pain in the victims. Many currently accepted definitions were created before technology became such a large part of students’ lives. But today, anyone with access to the Internet can post hurtful comments about or threats to someone; however, even worse, these comments can be saved to forums where they can be read by anyone else.

Again, to define the construct of peer victimization is a difficult task. Combining the commonalities of the many different but accepted definitions in the literature might be the best method of coming to an agreed upon understanding of the phenomenon. It appears that the various definitions all include that peer victimization can be either physical or verbal. It seems that most definitions also include a component of repetition. In other words, peer victimization isn't regarded as a single attack, but behaviors that occur repeatedly over time.

For the purposes of this study, the utilized definition for peer victimization will have three components:

- (1) It can be physical, verbal, or exclusionary in nature.
- (2) Attacks are repeated over time.
- (3) There is an imbalance of power between the attacker and the attacked.

This three-part definition will serve to create the construct appropriately viewing peer victimization and its effects as a multi-faceted phenomenon.

How prevalent is peer victimization?

Peer victimization is prevalent – prevalent enough to cause vast problems amongst the youth affected by it. Peer victimization and harassment are pervasive problems in America's schools. There are significant numbers of victimized children at all school levels, with peer victimization occurrences peaking during the middle school years. Studies consistently demonstrate the breadth of the problem; one national study demonstrates that peer victimization affects nearly one in every three American school children in grades six through ten (NSSP, 2007). Another claims that the majority of students experience some form of harassment in schools during their childhood (GLSEN,

2005). Nansel and colleagues published the first large-scale study of peer victimization in the United States in 2000. By surveying more than 15,000 students in grades six through ten, they found the prevalence of peer victimization involvement among American teens and preteens to be approximately 30% (Nansel et al., 2001). This indicates a significant number of our youth are victims.

In another recent study to determine prevalence of peer victimization among elementary students (Glew et al., 2005), twenty-two percent of children surveyed were involved in peer victimization either as a victim, an attacker, or both. In addition, it was found that victims were more likely to have low academic achievement, and they were significantly more likely to feel unsafe at school, and worse yet, they felt sad most days. Most important to this study is that victims were more likely to report feeling that they don't belong at school, which could have a direct impact on attendance. In other words, victimized children dislike school and want to avoid it (Glew et al., 2005). In his various reports and studies, Olweus established that approximately 15% of students are either victimized regularly or are initiators of peer victimization behavior (Olweus, 1993). But this figure may be low, as it is the summary of research conducted over fifteen years ago. A more recent national study claims that peer victimization affects nearly one in every three American schoolchildren in sixth through tenth grade (NSSP, 2007). It appears that the trend is increasing victimization rates for our nation's schoolchildren.

No matter what the actual percentage of victimization is for peer victimization in American schools, it is a problem. Too many children feel unsafe. Too many children dislike school because of the negative aspects of the environment. The prevalence of victims in our schools vastly affects the overall success of the public school system. Peer

victimization is not a new phenomenon in our schools, but there is evidence that the prevalence of victimization is on the rise. Examining the referenced studies chronologically indicates an upward trend in the percentages of victimized students across time. Certainly, the severity of the peer victimization acts seems to be intensifying as well as demonstrated by the current reports in the media of violent incidents in schools. Student attackers are resorting to weapons in their methods, and often victims are harmed far beyond mere mental anguish.

What are the impacts of peer victimization?

Peer victimization has serious consequences. Children and youth who are victimized are more likely than other children to be depressed, lonely, and/or anxious. They have lower self-esteems, and can be absent from school at greater rates. They often feel sick, and sometimes they even begin to think about suicide (U.S. Department of Health and Human Services, 2007).

In addition, a strong association appears to exist between peer victimization of other students during the school years and experiencing illegal or criminal behaviors as adults (Olweus, 1993). So the victims are obviously impacted, but peer victimization indicates problems for the instigators as well. In one study, 60% of those characterized as bullies in grades 6-9 had at least one criminal conviction by age 24 (Olweus, 1993). Another study indicated that bullies as youth continued their negative behaviors towards others into their adult years (Koki, 1991). These may include simple anti-social behaviors, but those who attack others as children, usually do not do well as adults.

Most interesting from the recent findings in a study conducted by the U.S. Department of Health and Human Services is that peer victimization can negatively

impact school attendance. Evidence suggests that children who are victimized skip school to avoid being physically or mentally harmed. Sharp (1995) concluded that 20% of 723 British elementary, middle, and high school children surveyed said they would skip school as a strategy to avoid being victimized. Key to this finding, however, is that students said they would skip school, but the study did not actually measure whether they truly missed school or not. The nationwide 1995 Youth Risk Behavior Surveillance study found that 4.5% of the students surveyed in grades nine through 12 reported that they had missed at least one day of school during the 30 preceding days because they had felt unsafe at school or when traveling to or from school (Kann et al., 1995). Victims often fear school and consider school to be an unsafe and unhappy place. As many as 7% of America's eighth-graders stay home at least once a month because of their fear of bullies (Glew, 2005). Victimized children report that fear of school is a significant reason why they initially are absent from school and why they continue to miss school.

The act of being victimized tends to increase some students' sense of isolation because their peers do not want to lose status by associating with them or because they do not want to increase the risks of being victimized themselves. Friends of victimized students may alienate the victims to avoid being picked on themselves. So not only do attacked students feel victimized, they can lose their friends as well. These consequences of being victimized can lead to depression and low self-esteem, problems that can carry into adulthood (Batsche & Knoff, 1994; Olweus, 1993).

The impacts of peer victimization on the victimized students are varied and many. Victimized students suffer from mental and physical pain. In addition, lasting psychological damage well into adulthood can be a consequence. They may skip school,

which logically would negatively affect achievement. And, no less devastating, they can become ostracized from their peers. Clearly, the impact of peer victimization on its victims has unpredictable outcomes for the victims themselves; nevertheless, those outcomes are usually negative, and the severity of the impacts can lead to short-term and long-term damage for those victimized students.

When is a student being victimized?

Again, for most definitions of peer victimization, attacks, whether physical or verbal, must be repeated. One experience of physical or verbal attack does not constitute peer victimization. Although there does not seem to be an accepted number of incidents that confirm actual peer victimization, several studies confirm that there is a high, positive correlation between incidents reported and self-reported peer victimization (Espelage & Swearer, 2003; Olweus, 1993; U.S. Department of Justice, 2002). In other words, the more episodes of peer victimization, the more a student is being victimized. The consensus for research on peer victimization appears to be that a student can be qualified as a victim when the attacks, whether physical or verbal, are repeated over time (Koki, 1999). Most research studies ask students the frequency of attacks over a defined period of time. If the reported frequencies are more than one, the student is classified as a victim.

How is peer victimization measured, and how are victims identified?

Peer victimization can be reliably and validly measured. The existing measures primarily consist of self-report scales, peer nominations, and teachers' ratings. Sometimes mere behavioral observation is used as well. Each of these methods of measuring peer victimization can have valuable research purposes (Xiao, 2007). Self-

reported measures of peer victimization might have the advantage when it comes to looking at academic effects from peer victimization because it is each individual student's own feeling about their level of victimization that is being used in the various analyses. A commonality of self-reported peer victimization scales is that students are asked directly how often they engaged in certain behaviors over a specified time period (Espelage & Swearer, 2003). Certainly, if a student perceives him/herself as a victim, the damage associated with peer victimization can be present.

The use of different methods of labeling victims of school peer victimization in educational research is sometimes viewed with skepticism. However for this study's purposes, responses to self-reported measures are viewed as a tool for evaluating student constructs of peer victimization. A recent study compared demographic and descriptive characteristics and peer victimization experiences of self-labeled victims to those students who have been victimized but do not label themselves a victim (Theriot et al., 2005). Chi-square and MANOVA comparisons demonstrated that self-labeled victims experienced more specific types of peer victimization, more total peer victimization behaviors, and more frequent peer victimization than their non-labeled counterparts. Thus, it appears that students are capable of accurately identifying their own victimization levels by responding to self-observing checklists. Johnson & Lewis (1999) used the 'Life in School checklist' and O'Moore & Kirkham (2001) employed a modified version (Whitney & Smith, 1993) of the Olweus self-report questionnaire successfully in their own peer victimization research. So self-reporting does have merits as a method of determining victimization.

Benefits of self-report vs. peer nomination, teacher, or parent reports.

There are many ways for data about peer victimization to be collected. To determine the extent to which a student is victimized, one can use self-reports, peer nomination, or teacher/parent reports. All of these methods have been used in various studies for their strengths in addressing particular research questions. There is no universally accepted method for determining victimization, and regrettably each method has weaknesses.

For purposes of this study, it is presumed that self-report of victimization levels is the best method. For one, it is assumed that each individual child is the best observer of his/her own circumstances, and would best be able to recount any peer victimization experiences. In addition, a student's view of his/her own experience is largely intrapersonal, and really only takes into account how he/she personally feels about interactions with others. Unfortunately, this measure may lend itself to exaggeration, as students want to convey a level of victimization that might get them help. But, as previously mentioned, studies have shown that self-reports can be reliable and valid.

Another type of victimization measure employs students in classrooms as observers of the victimization that takes place (i.e. peer nomination). A criticism of peer nomination (in which students are asked who the victims are in a class) is that the results are interpersonal. In other words, relationships and the culture of the class are considered in the students' responses. The construct being measured is often relationships in the classroom rather than true victimization. In addition, peer nomination is a controversial measure because of the danger it may bring to the classroom culture, and often, students simply don't tell the truth about other students.

Similarly, using a parent or teacher as the agent for determining which students are victims has limitations. Parents can be emotionally charged about the level to which their student is victimized. They may report higher levels of peer victimization for this reason. Teachers cannot observe every single interaction between their students, so often their view can be simplified or understated.

In sum, self-reported victimization levels may be the most valid and reliable measure for this study's purposes.

Are there multiple facets to peer victimization?

Although peer victimization is often viewed as a single construct, there is some research to suggest that it is multi-dimensional. For convenience, many studies define peer victimization as repeated negative actions towards a student, but "negative actions" can take on many forms. There is evidence that there are three different types of victimization, all with possible negative impacts on the victimized students. Although no particular study appears to break down peer victimization behaviors by these three types, the definitions found in much of the research suggest that a three-dimensional construct is appropriate. The three types of peer victimization found in the literature are physical, verbal, and exclusion.

Physical Abuse.

First, and most obvious, is that peer victimization can be physical. Any harmful actions towards one's body including pinching, hitting, or kicking is peer victimization (Olweus, 1993). Sometimes bullies enlist peers to assist in the assaults. In fact, one study (O'Connell, Craig, & Pepler, 1999) claims that peers are involved in as many as 85% of peer victimization episodes whether by actively participating or passively reinforcing.

Physical abuse is the most obvious form of peer victimization to bystanders because it can lead to cuts and bruises or other visible evidence of abuse, but physical abuse is less prevalent than verbal abuse (Olweus, 1993). Physical abuse is the least often employed type of victimization for this very reason; it is easier to be caught and the punishments for physical abuse are more severe.

Verbal Abuse.

In addition to physical abuse, there is verbal peer victimization. This includes any communication with another meant to hurt, embarrass, or upset him/her. Direct verbal abuse can include taunting, teasing, and name-calling (Rigby, 1996a). Threats of physical harm are often part of the verbal abuse. Again, this is the most prevalent type of victimization found in schools; it is hardest for adults to catch and easiest for bullies to deny.

Peer Exclusion.

Lastly, as suggested by many studies (Buhs, Ladd & Herald 2006; Olweus, 1993; Crick & Grotpeter, 1995), another type of peer victimization is peer exclusion. Olweus (1993) uses the term “indirect bullying,” but it is in essence any attempt by the attacker to use social isolation and intentional exclusion from a group to hurt a victim. This can also include harming others through manipulation and purposeful damage to peer relationships (Crick & Grotpeter, 1995). Students can manipulate friendships and peer social groups, which often results in causing harm to others. Peer exclusion is the least obvious type of peer victimization; often, it isn’t even recognized by the victim as a type of peer victimization. However, it can cause as much pain to the victim as verbal or physical abuse (Olweus, 1993).

In conclusion, it seems appropriate to consider three distinct types of peer victimization as variables for this study, different from other studies on victimization that tend to lump all victimization into one variable. Physical, verbal, and exclusionary abuse can all have pronounced, negative effects on the victimized students, and as explained each type might have different effects on the victims themselves.

Do different types of peer victimization have different impacts on the victims?

Specifically important for this research project, is the Buhs, Ladd, and Herald study (2006) in which they noted differences in relationships between types of peer victimization and achievement when broken down into two areas: peer abuse and peer exclusion. In a structural equation model, they found stronger negative relationships between peer abuse and achievement than they did between peer exclusion and achievement. It is the intention of this proposed study to examine those relationships more closely; in particular by breaking peer abuse into verbal, physical, and exclusionary subtypes.

Absenteeism

In modern day education, some students often miss school. Some students avoid school because they don't want to be there for various reasons. Other students miss school because they shouldn't be there. For instance, illness can occur, and the student stays home to recover. Parents are responsible for the absent students at varying levels. Some parents will call their student in "excused" at the plea of their student, and others simply do not monitor their student enough to be aware of their attendance habits. The bottom line is that students need to attend school to learn. Any extreme absenteeism rates have negative impacts on the students' academic achievement, and often, these high

incidences of absence rates have negative effects on the teachers, schools, and school districts as well.

Is absenteeism a problem?

Absenteeism is a problem in the modern age. Every day in the United States, hundreds of thousands of students miss school without a legitimate reason (Mogulescu & Segal, 2002). Truancy is a growing concern in public schools. Many schools across the nation are reporting daily attendance rates of less than 80%. When one in five students is gone, educational goals are damaged; missing classes certainly affects student performance. Failed classes, missed skills and knowledge, and general lack of connectedness to school are all the result of excessive absences. In addition, truancy habits in school years can lead to poor attendance habits in the workplace. Truancy not only leads to decreased academic achievement, but also having youth not in school can lead to problems for public safety. Studies show that 75 to 85% of all serious juvenile offenders have been chronically truant from school (CFFC, 2002). Chronically absent students are at risk for other serious behavioral issues such as drug abuse and serious criminal activity (Baker, Sigmon, & Nugent, 2001). Many inner city police departments work directly with school districts on truancy programs as a direct strategy to lower crime.

How does absenteeism affect achievement?

Just as the NCLB Act has put increased emphasis on student achievement as measured by standardized test scores, it has also mandated that schools and school districts also report unexcused absentee rates in their published report cards, and absenteeism is an additional indicator for Adequate Yearly Progress (Colorado

Department of Education, 2008). Legislators obviously expect a correlation between attendance and achievement. Any experienced educator understands the connection between consistently high attendance and improved learning.

Douglas Lamdin (1996) studied specifically the effect of attendance rates on student achievement, and possibly decisions around including attendance targets as part of NCLB could be due to the results found in his studies. In essence, Lamdin found significant correlation coefficients between attendance and achievement. Specifically, the correlation coefficients between attendance rate and above average achievement on Reading and Math test scores were .61 and .56 respectively, both significant at the 1% level. Lambdin suggested that falling scores on math and science achievement tests for high school students could be due to the increased absence and truancy rates of high school students. Typically, a large increase in missed school takes place in grades past the 10th grade because students become responsible for their own transportation, and parental monitoring of schooling decreases. In addition, Clump, Bauer, and Whiteleather (2003) found in a study regarding absences and achievement that lower attendance rates correlated with lower test scores on math and science achievement tests.

It makes substantive sense that students need to be in school to learn. Some students skip school unexcused, and others coerce parents into calling in an excused absence to the school. But ultimately, if students miss school too frequently, achievement is negatively impacted.

How is absenteeism typically measured?

School absenteeism can be reliably and validly measured. Studies needing an absenteeism variable have used total numbers of absences or percentage of classes

missed. Assuming records for student attendance are accurately recorded, an absenteeism variable can be easily created. Thus, survey research linking victimization and truancy can be carried out in school settings. Different from the Buhs, Ladd and Herald study (2003) in which the attendance variable was a “School Avoidance” construct, for which students indicated how much they would like to miss school, this study will employ real attendance rates as the absenteeism measure.

School Engagement

Most educators agree that students have differing personal characteristics that either decrease or increase their potential for success in school. Educational researchers have for a long time attempted to define and measure these characteristics. The construct for these personal characteristics has become known as “school engagement.”

What is school engagement?

School engagement is used in research to describe differences in student learning. Differences in attitudes towards school and behaviors while in school are hopefully captured in a school engagement construct. It is a construct developed to explain differences in student achievement due to these various, potential differing, student characteristics that increase the likelihood of academic success. Much of the research and literature on engagement is an attempt to define the several different factors that explain why some students learn more successfully than others. Students with higher engagement in classroom activities are responding to some environmental factors that improve their functioning in the school setting (Shernoff & Schmidt, 2008). Ultimately, those students deemed as “disengaged” generally have poorer academic outcomes than those students who are “engaged.”

Engagement is considered a multidimensional construct, yet often in studies it is treated as a singular variable. However, in studies in which these different aspects are important to researchers, especially those examining school engagement and achievement, these different aspects are often measured independently and individually. One study using a student engagement variable divided the construct into two different parts: behavior and affect (Finn, 1993). Behavior is mainly how a student participates in class; logically, the more a student participates, the more he/she is engaged, and ultimately, the more likely he/she achieves. Affect is the degree to which the student feels he/she belongs in the academic setting. Elements contributing to higher levels of affect are the effectiveness and warmth of staff and fellow students' accepting nature. A clear relationship with the other students, teachers, and the overall school culture is a big part of "affect."

A more recent study defined the school engagement construct with three specific areas of focus (Finlay et al., in press). Those engagement areas are the following: behavioral, emotional, and cognitive. The National Center for School Engagement created a 40-item survey that measured each subtype of engagement separately. Fifteen items from that survey were used in the instrument developed for this study.

One other qualitative study very specifically examined engagement and defined engagement with several observable behaviors (Harris, 2008). Cognitive engagement was indicated by learning and psychological behaviors, while emotional engagement was observed with mood and affect indicators. Connection to the school was important for emotional engagement, and specific classroom culture and bonding built cognitive engagement.

From the previous research, it seems most important to recognize school engagement as a multidimensional construct. The design of the survey for this proposed study treats engagement as a multi-faceted construct. It is not adequate to treat engagement as a single measure; but instead, the survey measures three separate parts of engagement using the selected items from the larger 40-item survey constructed by the National Center for School Engagement (Finlay et al., in press). This prevents treating engagement as simply “being well-behaved,” but rather looks specifically at what behaviors a student displays that contribute to his/her success in school.

What factors contribute to school engagement?

The National Center for School Engagement view three specific factors that contribute to not only indication of school engagement, but increasing the factors leads to higher school engagement as well (Heilbrunn, 2008). These three factors are attendance, attachment, and achievement. These factors and their relationships are interrelated, but their exact relationships still need to be explored.

Clearly, behavior while in school is an important aspect of being engaged and ready to learn while at school. Teachers want students to behave appropriately while in school. But the proposed three-subtype model of engagement attempts to acknowledge that a student must also be interested, cognitively aware, participating, and excited to get the most out of a learning experience. A multi-aspect view of engagement recognizes that some students better interact with learning materials and teachers to achieve more quickly and efficiently than their peers; this is all part of school engagement.

How is school engagement measured?

School engagement has been measured in many ways in educational research. According to a recent review (Fredricks, Blumenfeld, & Paris, 2004), there are three widely used conceptualizations of engagement including behavioral engagement, emotional engagement, and cognitive engagement. Indications of behavioral engagement are following rules and norms while in school, giving effort to activities, demonstrating persistence and concentration pertaining to coursework, and participation in school activities. Emotional engagement refers to students' overall interest, school spirit, connectedness to school peers and staff. In addition, emotional engagement is marked by the lack of boredom, anxiety, sadness, and fear while at school. The aforementioned cognitive engagement refers to strategic thinking concerning problem solving, preference for challenge, and psychological investment in learning. In other words, cognitive engagement is a student's ability to self-regulate his/her investment in the learning process.

Does school engagement affect academic achievement?

Studies demonstrate significant correlations between school engagement variables and academic achievement (Finn, 1993; Finlay et al., in press; Fredricks, Blumenfeld, & Paris, 2004). Specifically in the Finn study, higher levels of participation indicated higher levels of achievement. Interestingly, gender and race did not have significant interactions with the school engagement variable indicating that a school engagement construct is appropriate for use with any demographic. In addition, the study suggests harmful effects on academic achievement from non-participation or lower engagement levels. It is apparent that more engaged students do better in school.

Structural Equation Modeling

Structural equation models are “a comprehensive statistical approach to testing hypotheses about relations among observed and latent variables” (Hoyle, 1995). Latent variable modeling or (SEM) attempts to define hypothetical latent constructs in terms of measured variables, and then places a structural model to describe the strength of the linear relationships among/between these latent constructs. SEM combines aspects of factor analysis and multiple regression in analyzing the relationships among/between manifest and latent variables simultaneously. Structural equation modeling specifies a model to illustrate the hypothesized model, and uses various fit statistics to evaluate the integrity of that model. SEM allows evaluation of model fit and the contribution of each independent variable to the dependent variable. SEM is a confirmatory technique that allows the estimation, evaluation, and possible modification of the proposed models for the relationships between the variables of interest. Another strength of structural equation modeling is that one can specify a variable as both a predictor and criterion in the same analysis. In other words, indirect effects of variables can be estimated (Kline, 1998).

The AMOS software program tests the hypothesized structural equation models. The AMOS software package builds the specified models and provides fit indices with which to evaluate these models. With structural equation modeling, statistical estimates of the direct effects of exogenous (independent) variables on endogenous (dependent) variables are represented by path coefficients, which is similar to the concept of regression coefficients in multiple regressions. AMOS provides both path coefficients and fit indices for the researcher-specified models.

There are many criteria and standards used to examine model fit in structural equation modeling. The chi-square statistic for the model is generally the first examined as a measure of fit. For a good fitting model, the chi-square statistic should be nonsignificant at the 5% level. Chi-square for SEM is, in essence, a badness-of-fit statistic, in that a small chi-square statistic corresponds to good fit. In addition, most models are evaluated using root-mean-square error of approximation (RMSEA). RMSEA measures the “discrepancy per degree of freedom” for a model. RMSEA values below 0.05 indicate a very good fit, and those below 0.08 indicate reasonable fit (Joreskog & Sorbom, 1993). Two other often used goodness-of-fit statistics are the “comparative fit index” (CFI) and “standardized root-mean-square residual” (SRMR) to evaluate hypothesized models. Generally, a CFI of greater than 0.95 and SRMR of less than 0.05 are recommended as standards for good fit (Joreskog & Sorbom, 1993; Kline, 1998).

Relationships modeled via structural equation models are not absolute explanations of variance in the variables of interest; however, some portion of the variation in the dependent variable can be explained by the independent constructs, and fit indices describe the strength of the model in determining how well the independent variables function (Joreskog & Sorbom, 1993). Still, researchers cannot assume causation between two variables despite a high correlation coefficient between those two variables. However, if several additional criteria are met, causal inferences can be made. The following three criteria generally provide evidence for causal inference: (1) *Direction* - one variable should occur before the other, (2) *Association* - two variables must be related to one another (indicated by a correlation), and (3) *Isolation* - the correlations between two variables must not be due to common response to another confounding or

lurking variable (Kline, 1998). Isolation is the most difficult of the three criteria to meet; generally, it is presumed that some of the possible confounding or lurking variables were considered in a study, but one can't possibly control for all confounding variables. The criterion of direction is often presumed because of the ordering of the variables in the model, and association is usually established by the correlations between the included variables. Ultimately it is up to the researcher to make substantive observations regarding the requirements needed for causal inference.

Summary

Peer victimization is a problem in modern education. Many victimized students go to schools where others either physically or verbally abuse them, or purposefully exclude them. The negative impacts on the victimized students are many.

Poor attendance is also a problem in modern education. Students are missing school at increased rates; subsequently, achievement is negatively affected. In an age of education defined by accountability, educators need students in school to learn and achieve.

The literature lacks a specific examination of the relationships between peer victimization and attendance. Does peer victimization directly impact attendance that in turn impacts achievement, or does peer victimization influence a student's engagement which in turn leads to lowered attendance finally resulting in lower academic achievement? A limitation of the existing research on peer victimization is the inadequate attention given to the connection between victimization and attendance at school. It may be that a direct link between victimized students and their attendance affects overall achievement, or more likely a combination of direct effects through missed school as well

as indirect effects of disengagement from the school environment that leads to less-than-potential achievement.

Expectations of Study

This study attempted to determine if peer victimization significantly impacts student attendance. Much of the research has established the relationships between peer victimization and achievement, self-esteem, and other variables relating to the victimized student; however, the specific relationship between peer victimization and attendance has largely gone unexplored. Structural equation models test the hypothesized relationships between latent and directly observed variables; SEM was the logical analysis technique to test the hypothesized relationships between peer victimization and attendance. The expectation of this study was that measurement models would provide statistical insight into those relationships.

CHAPTER TWO

Method

The purpose of this study was to better understand the relationships between middle school students' victimization frequencies, victimization types, and their school attendance. Then, ultimately, the effects of victimization, attendance, and school engagement on academic achievement were examined. Previous research has examined the relationships between peer victimization, engagement, and achievement (Buhs, Ladd, & Herald, 2006). These researchers evaluated a structural equation model linking different types of maltreatment, resulting change in engagement and "school avoidance," and then, subsequent total academic achievement levels (Figure 1). However, their results suggested that peer victimization and school avoidance do not necessarily have a simple direct relationship, but that the school avoidance latent variable (how much students did not want to be at school) could possibly be mediated by the school engagement, latent component. Simply stated, changes to their model were warranted. As uncovered in the literature review, it is quite possible that peer victimization does not directly cause students to miss more school. Instead, it is reasonable that victimization causes school engagement to decline in victimized students, and in turn, attendance is negatively affected. Ultimately, the more school a student misses, the more likely achievement is negatively affected. So, school engagement may be best viewed as a mediating variable between attendance and academic achievement with an additional direct effect between

attendance and achievement included in the model. The main purpose of this study was to determine the strength of the relationships between the variables of interest and to find the best ordering of the relationships in a structural model.

In addition, previous studies of peer victimization impacts on students have treated the victimization components as single independent variables. Specificity about what types of peer victimization and to what intensity and frequency victimization occurred was not considered. In essence, this study replicated, (with modifications), the study performed by Buhs, Ladd, and Herald (2006). As seen in Figure 1, their model distinguished between “Chronic Abuse” and “Chronic Exclusion.” The data for this study allowed the inclusion of a distinction between verbal and physical abuse. In addition, this study included a “peer victimization intensity” component, as it was hypothesized that the greater a subject’s perceived intensity of victimization, the greater the subsequent impact on engagement, attendance, and achievement. In addition, the Buhs, Ladd, and Herald study treated the school avoidance variable as a latent variable derived of answers to questions about how much students wanted to avoid school, while this study proposed that including a true attendance variable as the school avoidance measure would better describe the relationship between victimization and attendance. It was hoped that this variable would be more accurate as the scores for students would be directly obtained from school records. Frankly, most students, if asked, would indicate that they would rather not be at school; an actual attendance measure determined if they truly act on that desire.

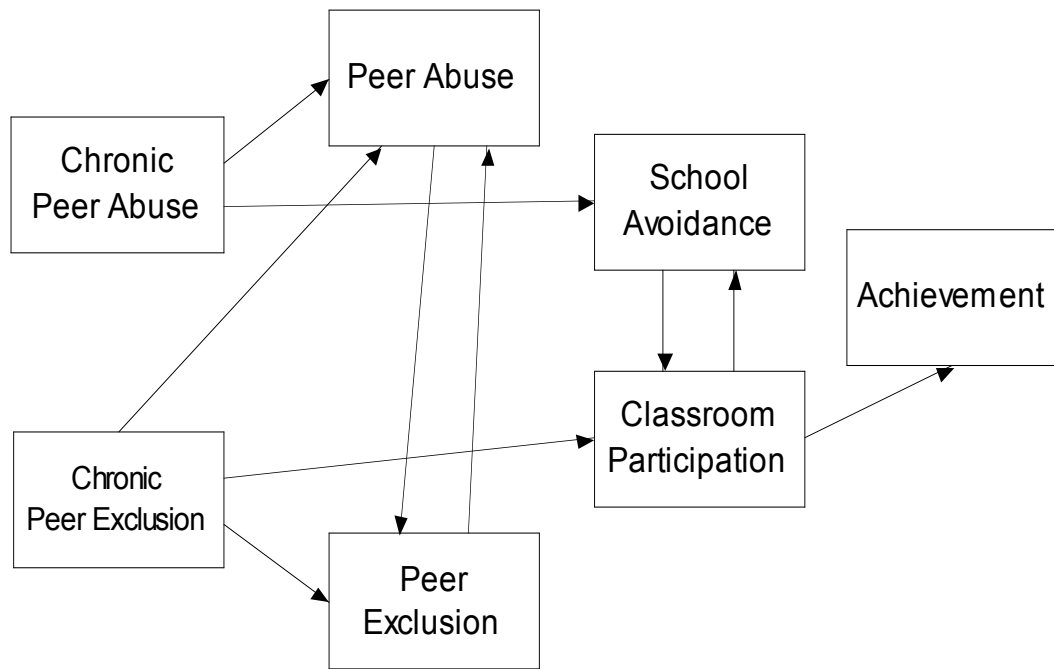


Figure 1. Buhs, Ladd, and Herald (2006) tested this structural equation model relating victimization, participation, avoidance and achievement.

Ultimately, the goal of this study was to formulate and evaluate a framework for the associations between victimization, engagement, attendance, and ultimately, student achievement. It was hypothesized that reordering the student engagement variable and adding specificity about peer victimization behaviors and intensity would improve the fit of the structural model.

A diagram of the proposed hypothetical model for this study is shown in Figure 2. Of course, the purpose of structural equation modeling is to test a set of hypotheses and then use fit statistics to determine the robustness of a particular model. Then, the researcher can make adjustments to the model (based on theory), and see the resulting changes in fit. The model proposed in Figure 2 was only a hypothesis, and it was hoped

that modifications after original model fit examination would result in specification of the strongest relationship between the variables of interest.

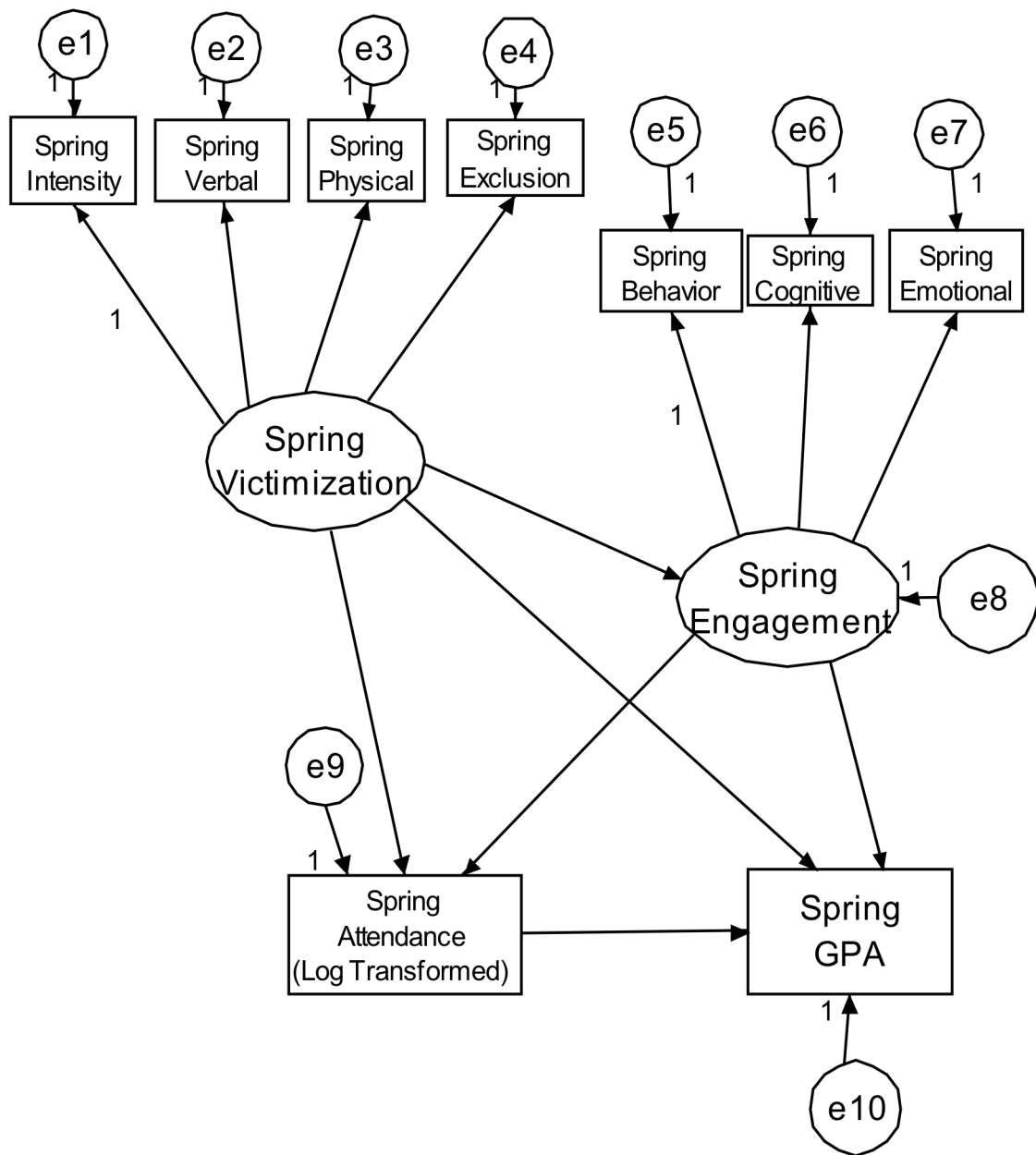


Figure 2. Hypothesized model treating victimization and engagement as multi-dimensional latent constructs, and treating school avoidance as actual school attendance.

As can be seen in Figure 2, it was believed that four different victimization variables better capture a latent representation of victimization to the students. In addition, it was hypothesized that this latent variable for student victimization would have significant direct effects on attendance, engagement levels, and achievement. Engagement was also treated as a latent variable; the three differing engagement components (behavioral, cognitive, and emotional) all combined to form this latent engagement variable. The model also evaluated the direct effect of school engagement on attendance and achievement.

Similar to the Buhs, Ladd, and Herald study, this study modeled the relationships proposed in Figure 2 utilizing survey data. The relationships between peer victimization types, victimization frequencies, and attendance could only be explored with data from a survey designed to get specific information from students about their victimization experiences. However, the differences between this proposed model and the Buhs, Ladd, and Herald model were many. Different from the Buhs, Ladd, and Herald study, the abuse variables for this study were self-reported rather than teacher-reported. It was hypothesized that the victims themselves would better be able to report the type, frequency, and intensity of their own peer victimization experiences. The victimization and engagement variables were treated as latent, with differing and more specific components as well. Lastly, absenteeism was actual school attendance, and achievement was grade point average.

Subjects from a single school district in a large county in Colorado completed the survey questionnaires designed specifically for study of this topic, measuring frequency, type, duration, and intensity of peer victimization as well as the subjects' school

engagement. In addition, data on absenteeism (attendance records) and school achievement (cumulative grade point averages) were collected from student records for each participant.

Definition of Population and Sample

The intended population for this study was all Colorado 6th grade students. The sample data were compiled from a large school district in Adams County, Colorado, a county in the northern metropolitan Denver area. Adams County is one of the ten most populous counties in the state of Colorado. This was a convenience sample; however, the characteristics of the sample lend to possible generalization of the results, as they are similar to the larger intended population (all middle school students) for this study.

According to the 2006 census, there were approximately a half million people, over 100,000 households, and about 90,000 families residing in Adams County at that time. The racial makeup of the county was nearly 80% White, about 3% Black or African-American, and 17% from other races including Native-American, Asian, and Pacific Islander. Approximately 30% of those indicating White race were Hispanic or Latino. The median income for a household in the county was just over \$47,000, and the median income for a family was just over \$52,000. Males had a median income of over \$36,000 versus just over \$28,000 for females. The per capita income for the county was just over \$20,000. Approximately 6.5% of families and 8.9% of the population were below the poverty line, including 10.9% of those under age 18 and 7.3% of those age 65 or over.

As of the 2007 school year, the Adams County 12 Five Star School District operated with a total enrollment of nearly 40,000 students. Approximately 60% of this

enrollment was White, 40% minority (including almost 30% Hispanic); these data replicate the demographics of the overall county racial attributes. The overall percentage of students who qualified for free or reduced lunches was over twenty-five percent, and over fifteen percent of enrolled students were English Language Learners, speaking a total of 71 different languages.

For the 2003-4 school year, the school district labeled a total of 18,996 students (27.68% of the total enrollment) as “truant,” based upon numbers of recorded unexcused absences and the Colorado legal definition. (Under Colorado law, “truant” is defined as four or more unexcused absences in a single month, or 10 unexcused absences in a year.) Recognizing habitual truancy as a risk factor for suspensions, expulsions, dropping out, drug use, and other negative behaviors, Adams County 12 Five Star School District joined with four other school districts in 2005 to form a Truancy Reduction Consortium, in partnership with the local courts, for the purpose of developing truancy prevention and intervention strategies and programs. Clearly, poor attendance is a problem for this particular school district.

Adams County was an ideal location to conduct this study. The school district for Adams County serves a diverse community. The school district includes high, middle, and low SES populations. The percentages of non-White groups in this county mirror the percentages of these groups in Colorado as a whole. Although African-American students make up approximately 15% of public school enrollment, they comprise only 3% of Adams County Schools, but this county does serve to provide a fairly representative sample for purposes of making inferences about Colorado students in general. Most importantly, Adams County 12 Five Star School District forms a fairly representative

sample of the type of Colorado schools that deal with truancy at its highest levels.

Because of their interest in reducing truancy, the school district in Adams County was willing to cooperate to collect truancy and victimization data. They wanted to examine the effects of peer victimization on truancy to hopefully provide impetus for positive truancy program changes.

The accessible population for this study were 6th grade middle school students enrolled in the school district. The survey was given to 6th graders rather than 7th and 8th graders to better explain the victimization-absenteeism link. Sixth grade is a transitional year for middle school students during which stable patterns of victimization and school adjustment problems have yet to be formed. It may be more difficult to sort out cause-effect relationship during seventh and eighth grade when the linkage between these relationships has been well established. The participants in this survey were a convenience sample of 6th graders recruited from middle schools agreeing to participate in this study.

The sample for this study consisted of 860 6th grade students from Adams County 12 Five Star School District. The student gender consisted of 46.4% males and 52.1% females. The ethnicity breakdown was as follows: 63.1% White, 29.9% Hispanic, 4.5% Asian, 1.7% Black, and 0.7% other. These percentages reflect many of the ethnic proportions found in urban and suburban school districts in Colorado. The sample does contain a significant “at-risk” proportion. Of the students included, 33.3% receive free- or reduced-lunches while at school. Again, the at-risk population of Adams County 12 Five Star is similar to the proportion found in many of the urban and suburban school districts of Colorado. The similarities were purposeful as the sample was chosen so results of this

study can hopefully be generalized to other districts in our state. Table 1 describes the specific sample characteristics.

Table 1.
Sample Categorical Variable Frequencies and Percentages (n=860).

	Frequency	Percent %
Gender		
Male	400	46.4
Female	449	52.1
No Response	11	1.5
Ethnicity		
White	544	63.1
Hispanic	256	29.9
Asian	39	4.5
Black	15	1.7
Other	6	0.7
At-Risk Status		
Free Lunch	210	24.6
Reduced Lunch	75	8.7
Not Applicable	575	66.7

Instrumentation

This study used secondary data analysis. The data for this dissertation were drawn from a survey designed and administered by The Colorado Foundation for Families & Children. The Foundation compiled the results from the survey along with other pertinent variables for each subject included in the study. The Colorado Foundation has a special interest in examining the relationship between victimization and school attendance/achievement. In particular, the Foundation hopes to better understand the relationship between peer victimization and attendance in order to be able to inform and enhance efforts to reduce truancy at a causal level.

Instrument design was based on the need to have self-reported levels of victimization. Other studies examining the link between victimization and truancy have

utilized peer reports or teacher reports of victimization levels. As previously discussed, asking students themselves for their perceived levels of victimization was believed to provide for more accurate identification of those who are truly victims.

The survey measure was developed by a CFFC research team to incorporate an extensive list of variables that included the following constructs: (a) absenteeism, (b) peer victimization, (specifically frequency, duration, intensity of victimization), (c) type of victimization, (d) school engagement, (e) school achievement, and (f) other demographic variables (gender, ethnicity, socio-economic status).

Validity

An instrument is considered valid when it measures what it is supposed to measure. The validity of the survey measure was established prior to administration of the survey by the research team for the Colorado Foundation for Families and Children. The engagement questions were developed by the National Center for School Engagement (NCSE) for the 40-item School Engagement Survey (Finlay et al., in press). The engagement items came from a variety of sources, and team researchers for NCSE categorized them in the areas of behavioral, cognitive, and emotional engagement (Finlay et al., in press). Concurrent validity was established with intercorrelations between the three different engagement subtypes as well.

The victimization items for the survey were borrowed from the University of Illinois Victimization Scale (Espelage & Holt, 2001) to measure the frequency and type of victimization. This original Victimization Scale was developed using results from interviews with students, and the scale was found to converge with peer nomination data indicating convergent validity (Espelage & Holt, 2001). Three distinct victimization

factors emerged in the initial analysis of the victimization items (Espelage & Holt, 2001). The Colorado Foundation for Families and Children research team evaluated the face validity of the items for the peer victimization portion as well as items for the school engagement portion. The instrument went through a thorough peer review process before use to determine adequate validity.

Reliability

The reliabilities of the multiple-item scales used in this study were tested by Cronbach's alpha, a measure of the internal consistency among multiple-item scales. In essence, Cronbach's alpha measures the inter-correlation between the sets of scale items for the construct intended for measurement (Sattler, 2001). A Cronbach's alpha of 0.7 or higher was expected as an indication that the items in the scales were consistently measuring the intended construct (Sattler). The Cronbach's alpha coefficient was determined for the following multi-item scales: behavioral engagement, cognitive engagement, emotional engagement, victimization intensity, verbal victimization, and exclusionary victimization. These were the only multi-item scales used in the survey. Table 2 shows Cronbach's alpha for the measured scales.

Table 2.
Cronbach's alpha coefficients for survey items.

Constructs	Cronbach's α	Items per scale
Behavioral Engagement (Fall)	.750	5
(Spring)	.781	
Cognitive Engagement (Fall)	.774	5
(Spring)	.815	
Emotional Engagement (Fall)	.805	5
(Spring)	.834	
Victimization Intensity (Fall)	.800	15
(Spring)	.832	
Verbal Victimization (Fall)	.852	3
(Spring)	.892	
Exclusionary Victimization (Fall)	.750	3
(Spring)	.768	

Table 2 shows the results of all Cronbach's alpha reliability coefficient calculations. From the results, it can be noted that all multiple-item scales have acceptable internal consistency using a standard $\alpha > 0.7$. These scales are sufficiently reliable with Cronbach's alphas ranging from .750 to .892. Interestingly, all reliability coefficients increased for the spring implementation of the survey. This might indicate a change in the students' engagement and victimization levels in the spring compared to the spring.

Data Collection

During the first week of April 2007, a list of all students who had unexcused absences during January, February, and March from each participating middle school was requested. The parents of these students were contacted to request permission for their child's participation in the study. In each middle school, students who had parental permission met in groups of no more than 15 students at an assigned school location during the school day. A graduate student explained the purpose of the study, gave

directions on how to fill out each measure, administered the measures, and collected them. For each participating student the following information was obtained from their school records, recorded, and stored in an EXCEL data file: cumulative grade point average for the first three quarters of school, grade level, age, gender, free/reduced lunch participation, and ethnicity.

The survey measure was given to the target sample at two different times during a school year in hopes of obtaining data that could be used to examine longitudinal effects of peer victimization behavior on attendance and achievement. The first wave of surveys was given to approximately 1150 students in October of 2007, and the second survey wave (identical format) was given to this same set of students in May of 2008.

Unfortunately, this two-wave system led to some attrition of subjects in both waves. For instance, some students who participated in the fall survey were absent or did not participate in the spring survey, and similarly, some students took the survey in the spring but did not participate in the fall. The dataset contained 860 complete student cases after removal of approximately 300 incomplete student cases that had missing data for one of the two survey sessions.

Variables Studied

Although secondary data analysis has the advantage of providing data efficiently, the variables studied must often be created to answer the research questions unique to this type of study. Furthermore, the theoretical model used for the structural equation analysis utilizes several latent variables that can only be represented by either item totals on the survey or a unique combination of observed variables from the survey.

Dependent Variables

For purposes of answering the research questions for this study, one of the dependent variables was student absenteeism. This variable was quantified as the total classes missed to provide greatest variability. Another dependent variable was academic achievement. One major goal of this study was to determine victimization impacts on achievement, so achievement was included in the structural equation model.

Absenteeism: The total number of absences, excused and unexcused, for both the first trimester and the third trimester of the school year were obtained from the school records of each student who participated in the study. Both excused and unexcused absences were included because it was hypothesized that students missing school because of their peer victimization levels may have been able to convince their parents to call them in as excused, and at this age, few students would be able to have unexcused absences. These two periods (first and third trimester) best represent possible affected attendance rates because they match the time periods in which the surveys were completed. The third trimester absence rate data best served as the absenteeism variable because this time period included the cumulative effects from peer victimization throughout the year. This third trimester absence rate variable was late enough in the school year for peer victimization incidents to have occurred and, as is explained below, measuring absenteeism at this time increased the likelihood that the self-reported victimization incidents occurred before a student's absence due to peer victimization. Absenteeism was treated as a continuous variable.

Academic Achievement: The students' academic achievement measure was grade point average on a four-point scale (F = 0, D = 1, C = 2, B = 3, and A = 4). GPA data for

each student were included for both the first trimester and the third trimester, (matching the time periods in which the surveys were administered.) Achievement was treated as a continuous variable.

Independent Variables

Frequency and type of peer victimization: One independent variable was the degree of peer victimization experiences, which included the number of times or frequency that a student experienced peer victimization behaviors while at school or at school-related activities. The survey was created with portions of the University of Illinois Victimization Scale (Espelage & Holt, 2001) to measure the frequency and type of victimization. A variable quantifying “victimization” included the following types of peer victimization behaviors: verbal, physical, and exclusion (See Appendix B, Items 18-24). Examples of each victimization type were the following: “Other students called me names” (verbal); “Other students spread rumors about me” (verbal); “I got hit and pushed by other students” (physical); “I am often left out of activities” (exclusion). Frequencies for a student who was victimized were determined by totaling the responses to the five choices on the survey. Students were asked to indicate the type of peer victimization that they experienced and how frequently this occurred (never; 1 or 2 times, 3 or 4 times, 5 or 6 times, 7 or more times) since the beginning of the school year. It was believed that totaling the responses to these victimization-type variables best served to create a frequency variable because greater numbers indicate more frequent victimization incidents. Students were asked about these behaviors during a specific time frame (“over the past 30 days”) in order to insure that victimization occurred before or concurrently with absenteeism. Frequency of peer victimization was treated as a continuous variable.

Intensity of victimization: This construct was measured in the original survey by having students check 15 different indicators of their feelings attributed to the victimization (See Appendix B, Item 26). For example, students were asked to check whether they experienced the following: “I was afraid while I was in school”; “I felt embarrassed and ashamed”; “I avoided going to places where there was no adult supervision.” There were 15 such “Intensity” measuring statements. The total out of fifteen for each student served as the victimization intensity measure. Intensity of peer victimization was treated as a continuous variable.

School engagement was measured using the NCSE School Engagement Survey (Finlay et al., in press). This is a 40-item survey that measures behavioral, emotional, and cognitive school engagement. For this survey, 5 items from each of the school engagement indicators were selected for inclusion (See Appendix B, Items 3-17). Totals in each of the engagement areas served as the measure for each student in behavioral, emotional, and cognitive engagement. Each school engagement subtype was treated as a continuous variable.

Table 3 provides a list of both dependent and independent variables including a description of the variable measurement method; in all, the study included two dependent and three independent variables.

Table 3.
Description of Variables Included in Study.

Variable Construct	Measurement Method
<u>Dependent Variables</u>	
Absenteeism	Total Absences per Trimester
Academic Achievement	Grade Point Average (4 point scale)
<u>Independent Variables</u>	
Victimization Frequency (3 Subtypes)	Total of 7 victimization scale items
1. Verbal	3 items
2. Physical	1 item
3. Exclusion	3 items
Victimization Intensity	Total of 15 intensity items
School Engagement (3 Subtypes)	Total of 15 engagement items
1. Cognitive	5 items
2. Behavioral	5 items
3. Emotional	5 items

Data Integrity

The original data for the surveys were entered into EXCEL worksheets. Before statistical analyses could be run the data from the two different EXCEL worksheets needed to be combined into a single SPSS data file. After receiving approval from the Institutional Review Board for the University of Denver, the data were merged into a single file. Student identification numbers were used to merge the two datasets together so that cases matched.

Data missingness

In addition, before any statistical analysis was conducted, a thorough data cleaning process was utilized. This included combining the spring and fall data, dealing

with missing data, and creating several latent variable constructs. Cases from the dataset that did not include data from either of the two survey sessions were deleted for final analysis leaving a total of 860 cases. Data missingness resulted in deletion of many cases from the study. The original dataset included 1009 cases. 149 of those cases were missing either the fall or spring responses to the survey. Listwise deletion resulted in the loss of 14.8% of total cases. Two approaches are generally used to address data missingness: data imputation and data deletion. Due to the longitudinal nature of the study, data imputation did not seem reasonable for those cases with either fall or spring missing data. Data imputation can be considered when data are missing at random (MAR) or missing completely at random (MCAR) (Allison, 2001). Data missing at random do not depend on the item values, and data missing completely at random do not depend on other values of items or the specific item values (Allison, 2001). After examining patterns of data missingness for these students, it was determined that they did not merely have a few missing responses, but entire fall or spring survey series of responses. In other words, data were not missing at random (MNAR); fall or spring survey items determined data missingness. Imputation would have been for 50% of the data for students with missing data. So, it was predicted that data imputation would introduce bias into the analyses. Imputation did not seem like a statistically sound decision, and the loss of power attributed to data deletion did not appear to be a problem as the total cases was still 860 students.

The data were also screened for outliers. Variable frequencies and histograms of each variable demonstrated that no out of range responses or outliers existed in the database for the cases remaining after listwise deletion of incomplete cases.

Procedures

To answer the proposed research questions, many data analysis techniques were employed. Data were entered in SPSS and analyzed using simple correlational and multiple-regression statistical routines. Each student in the study was given a score for total absences, frequency and intensity of victimization, GPA, as well as totals for school engagement levels in each of three areas (cognitive, behavioral, and emotional). In addition, student ages, codes for gender, student ethnicity, and free or reduced lunch participation were included. Descriptive statistics were computed for quantitative variables. Using absenteeism and GPA as dependent measures, and all remaining measures as predictors, the researcher explored the strength of various predictive models of absenteeism using multiple regression analyses.

Descriptive Statistics

SPSS was used to compute simple univariate descriptive statistics such as means and standard deviations for all variables. Demographic characteristics of this sample were computed in order to compare them to the characteristics of the general Adams County sixth grade population. In addition, data were disaggregated in order to determine similarities and differences in the relationship between victimization, school engagement, absenteeism, and achievement for students of different genders.

Correlation

The relationships between peer victimization frequency and types and subsequent school outcomes were analyzed in several ways. SPSS was used to calculate simple bivariate correlations. These correlations were used to build the structural equation model. In addition, plots showing the linearity of bivariate relationships and normality of

univariate measures were used to check that the data met the assumptions necessary for the analyses included in the study. Simple correlations were computed between all victimization measures of type, frequency, and intensity, and measures of attendance, engagement, and achievement for both fall and spring assessment periods.

Regression

To explore the question of whether fall victimization has a negative impact on attendance, achievement, and engagement, three sets of regression analyses were computed. The first set of equations examined the extent to which fall and spring absenteeism could be predicted from fall and spring victimization levels and intensity. Conversely, a second group of equations was examined to determine if fall and spring absenteeism could be predicted from fall and spring engagement levels. A third equation examined the relationship between the peer victimization variables and the student engagement variables.

SEM Model

In order to answer the question of whether the impact of victimization on school outcome measures of attendance and achievement is mediated by school engagement, a hypothesized pattern of linkages among all measured variables was constructed (peer abuse, peer exclusion, school engagement, attendance, achievement), and structural equation modeling (SEM) provided an evaluation of the fit of the hypothesized structural models to the data.

This study examined a relationship in which the frequency and type of victimization and other social variables were presumed to result in a change in attendance and engagement, and then consequently a change in achievement. Structural equation

modeling was used to examine this theoretical model and its accompanying proposed hypotheses. The researcher determined whether the path coefficients between peer victimization and student attendance were significant. In addition, the model was constructed to determine if school engagement and peer victimization variables were better treated as latent constructs rather than directly measured variables, with engagement serving as a mediating variable for the effect of the victimization variables on attendance and achievement. Finally, a model controlling for the fall survey data was assessed for fit.

For this study, the indirect effect of peer victimization on school engagement and subsequent indirect effects of school engagement on attendance were considered. The study attempted to determine if a direct negative relationship between peer victimization intensity/frequency and attendance exists, or whether an indirect effect of peer victimization intensity/frequency on attendance through a mediating variable like school engagement was more likely.

Model development was guided by several objectives. First, the study hoped to determine, more clearly, the effect of peer victimization on achievement, (whether it impacts attendance directly, or is mediated through school engagement.) The researcher looked to determine whether student maltreatment caused truancy directly, or if engagement was an intervening agent. Also, the degree to which absences and lowered school engagement affect achievement was assessed. In addition, by breaking victimization into three different types (verbal, physical, and exclusion), a better understanding of how type of peer victimization impacts the degree to which students are affected was determined. Different types of victimization impact different aspects of

students' affect leading ultimately to negative effects on student achievement. The path coefficients between the indicator variables and the latent variables would describe the strength of the relationship between the differing types of victimization, differing types of engagement, and the latent constructs they combine to form.

Summary

This chapter provided a description of the (a) population, (b) sample, (c) survey instrument, (d) data collection procedures, (e) variables included, (f) data integrity associated with the dataset, and (g) data analysis procedures that were used to produce this quantitative study.

There were thirteen primary research questions guiding this study. The first several questions were designed to explore the nature of engagement and victimization in schools. The next grouping of several questions explored the specific connections between self-reported peer victimization in schools and absenteeism via the use of simple correlations between the peer victimization frequency variables, engagement variables, and the attendance variable. The correlation coefficients between all of the different two variable relationships indicated the strength of the relationship between the different variables.

The third grouping of research questions, addressing the specific connections between type and frequency of victimization and total absences, were answered through the use of multiple regressions. The significances of the duration and frequency of victimization variables in prediction of attendance were assessed as a precursor to the structural equation portion of the study. The regression analyses prior to the structural

equation modeling aspect served to facilitate the building of the model itself. Correct paths were deduced with the relationships suggested by the regression analyses.

The last several research questions basically looked to establish if differing structural equation models would fit the data. To determine possible relationships between the variables of interest, the fits of two different structural models were evaluated after the measurement model treating peer victimization and school engagement as latent constructs was assessed. The proposed theoretical constructs of the relationships between peer victimization frequency, peer victimization intensity, school engagement, and attendance were tested. The significance of lowered engagement levels as a consequence of peer victimization was compared to the significance of attendance due to victimization.

All of the research questions were answered using data from the Colorado Foundation for Families and Children survey administered to the Adams County 6th grade student sample in the fall of 2007 and spring of 2008.

CHAPTER THREE

Results

The purpose of this study was to examine the specific relationships between peer victimization frequencies and types with attendance, while also considering school engagement levels and academic achievement. This chapter includes descriptive information about the data as well as the results of the correlational analyses, multiple regressions, and structural equation modeling portions of the study. Frequency tables and means and standard deviations were constructed for all variables included in the analyses.

Research Question #1

What frequencies of peer victimization behaviors do 6th grade students experience as middle school students?

Table 4 provides descriptive statistics for the fall portion of the survey to demonstrate the frequency of peer victimization as well as averages for each victimization prompt. Survey items 18-24 were intended to assess the frequency of victimization behaviors faced by the students over time. The survey asked how often the students had faced victimization behavior over the last 30 days, and the five possible frequency choices for the students to choose from were the following: “Never,” “1 or 2 times,” “3 or 4 times,” “5 or 6 times,” and “7 or more.” Responses were coded as “Never”=0, “1 or 2 times”=1, “3 or 4 times”=2, “5 or 6 times”=3, and “7 or more”=4. Although the averages for each item being under 1 ($M=.76, .74, .78, .54, .46, .46, .75$)

indicated that perhaps overall students did not often face victimization behaviors, the frequency percentages and the standard deviations of the items indicated that a number of students are victims often enough to cause concern. Considering the definition of victimization includes the criteria that the victim experiences multiple attacks, for each victimization item, the percent who qualify as victims totaled from a low of 9.5% to a high of 18.3%. Also, these totals didn't include students who indicated a response of "1" which means they faced victimization 1 or 2 times; some of these students, by the typically accepted definition of victimization, would qualify as victims as well. As many as 1 in 5 students felt victimized multiple times in the various types of victimization over the previous 30 days to the survey.

Another trend displayed in Table 4 is that the verbal victimization subtype was clearly the type most often faced by students. Students reported that they had been called names by other students multiple times (18.2%), and 18.3% indicated that they had been "picked on" multiple times as well. The lowest frequencies were found in the "exclusion" items with only 9.8% indicating that other students had excluded them, and only 9.5% indicating others had left them out of activities. The one "physical" item on the survey indicated students are somewhat frequently being physically abused with 12.2% indicating they faced this type of victimization multiple times over the previous 30 days.

Table 4.

Descriptive Statistics - Fall Peer Victimization Experiences by Victim (n=860).

Item	Description	*0	1	2	3	4	M	SD
18	Other students picked on me	57.0	24.7	9.3	3.0	6.0	.76	1.12
19	Other students made fun of me	55.1	27.2	10.3	2.9	4.4	.74	1.05
20	Other students called me names	55.0	26.9	8.4	4.3	5.5	.78	1.12
21	I got hit and pushed	66.4	21.3	7.3	1.7	3.2	.54	.94
22	Other students excluded me	71.9	18.3	4.5	2.7	2.6	.46	.90
23	Others left me out of activity	71.3	19.1	4.2	3.0	2.3	.46	.89
24	Other students said bad things	57.7	24.0	9.5	3.4	5.5	.75	1.11

Note. *0=Never, 1=1 or 2 times, 2=3 or 4 times, 3=5 or 6 times, 4=7 or more. Numbers in cells represent percentages of respondents.

Table 5 provides the descriptive statistics for the same victimization items on the survey, but for the spring implementation of the survey. The means for each of the victimization items increased slightly for the spring survey, an indication that perhaps more students faced frequent victimization behaviors in the spring than in the fall.

Although the means for the victimization items appear to go up from fall to spring, the responses by items have about the same order by victimization type. In other words, “verbal” attacks are the most frequently reported, while “exclusion” has the least number of incidents, and physical victims were moderately reported, somewhere between verbal and exclusion subtypes.

Table 5.

Descriptive Statistics - Spring Peer Victimization Experiences by Victim (n=860).

Item	Description	*0	1	2	3	4	M	SD
18	Other students picked on me	48.4	28.2	11.1	4.9	7.4	.95	1.21
19	Other students made fun of me	44.2	32.1	11.1	4.9	7.7	1.00	1.2
20	Other students called me names	45.0	30.8	11.0	5.8	7.3	1.0	1.21
21	I got hit and pushed	63.8	22.1	7.8	2.7	3.6	.60	.99
22	Other students excluded me	66.6	23.4	4.5	3.4	2.1	.51	.90
23	Others left me out of activity	68.7	21.4	5.6	2.7	1.6	.47	.85
24	Other students said bad things	45.2	30.0	10.6	6.1	8.0	1.02	1.24

Note. *0=Never, 1=1 or 2 times, 2=3 or 4 times, 3=5 or 6 times, 4=7 or more. Numbers in cells represent percentages of respondents.

In summary, 6th grade students faced various victimization behavior frequencies. The means and standard deviations for the items indicated that some students face no victimization behaviors, while others faced considerable victimization behaviors, enough to warrant the examination of the possible effects of these victimization behaviors. Subsequent analyses were intended to examine the specific impacts of victimization on their school conduct including attendance and engagement. In sum, the data provided evidence that some students are experiencing significant peer victimization behaviors in middle school.

Research Question #2

What intensity of peer victimization behaviors do 6th grade students experience as middle school students?

Items 26A-26P in Table 6 addressed the intensity of the victimization behaviors on the victims themselves from the fall survey. Students were asked to identify from the 16 items which ones they had experienced over the last 30 days. The table lists percentages for each item, and a total of the items overall served as the “Intensity” variable for other analyses in this study. The top three most responded to items were, “I felt embarrassed” at 22.9%, “I felt alone” at 20.6%, and disturbingly, “I wanted to hurt people” at 22.3%. It is extremely unfortunate that so many students felt moved to violence because of the victimization they experience at school. Pertinent to this particular study, the lowest percentage was for item 26D, “I missed school because of fear” with only 1.0% responding yes to this item. Students do not feel they are missing school because of their varying victimization levels to a great degree. Very few (3.2%) avoided using the bathroom during school, and fewer yet (2.8%) would break out in a

sweat during school because of their perceived victimization levels. The percentages ranged from 1.0% to 22.9% for the different “intensity” indicators demonstrating that the students are impacted at different intensity levels by their victimization.

Table 6.

Descriptive Statistics for Fall Peer Victimization Intensity by Victims (n=860).

Item #	Description	% Yes
26A	I worried about going to school	13.8
26B	I was afraid to go to school	8.8
26C	I was afraid while I was in school	8.5
26D	I missed school because of fear	1.0
26E	I felt physically sick	7.8
26F	I felt bad about myself	18.0
26G	I felt embarrassed	22.9
26H	I was angry at myself	8.7
26I	I wanted to hurt people	22.3
26J	I felt alone	20.6
26K	I was very nervous	19.6
26L	I would break down in a sweat	2.8
26M	I avoided places in school	6.0
26N	I avoided going to the bathroom	3.2
26O	I was unable to concentrate	13.7
26P	I did badly on tests	9.7

Table 7 indicates that the item totals for students were on average less than 2 ($M=1.87$). Although the percentages for each item indicated as many as 23% of the student responded “yes” to some of the items, an average for students of less than 2 suggested that, overall, students’ behaviors and attitudes were not affected greatly by victimization. It also appeared that females’ behaviors were more affected than males’ with an average total of 2.07 compared to their male counterparts with an average at 1.64. Males could be subject to fewer victimization incidents, or perhaps, males are less likely to respond to the victimization items in the surveys.

Table 7.

Descriptive Statistics for Fall Peer Victimization Intensity by Totals (n=860).

	M	SD
Males	1.64	2.29
Females	2.07	2.68
Total	1.87	2.51

Note. Average total for Intensity is out of 16 items.

Table 8 includes descriptive statistics for the “intensity” variable for the spring survey for comparison purposes with the fall survey. Again, there was a wide range of percentages responding “yes” to the items, from as low as 2.4% responding “yes” to the, “I missed school because of fear” item to as high as 29.5% to the, “I felt embarrassed” item. Interestingly, most items appeared to increase slightly compared to the fall survey responses. This echoed the increase in the frequency of victimization responses from fall to spring noted in the analysis of descriptive statistics in response to research question one. “I felt bad about myself” and “I felt embarrassed” were the two items with the largest percentage increases, suggesting that perhaps continuation of victimization levels over time lowered students’ self-esteem.

Table 8.

Descriptive Statistics for Spring Peer Victimization Intensity by Victims (n=860).

Item #	Description	% Yes
26A	I worried about going to school	13.7
26B	I was afraid to go to school	8.4
26C	I was afraid while I was in school	9.4
26D	I missed school because of fear	2.4
26E	I felt physically sick	10.0
26F	I felt bad about myself	24.6
26G	I felt embarrassed	29.5
26H	I was angry at myself	14.3
26I	I wanted to hurt people	26.7
26J	I felt alone	24.2
26K	I was very nervous	19.0
26L	I would break down in a sweat	4.2
26M	I avoided places in school	9.9
26N	I avoided going to the bathroom	5.3
26O	I was unable to concentrate	16.4
26P	I did badly on tests	13.6

The spring averages for victimization “intensity” items echoed the percentage increases for most items as both the mean for males and females increased. The means by gender increased, the same amount, about 0.5, suggesting that there are no gender differences in the increase of “intensity” over time. Table 9 describes the means and standard deviations for the peer victimization intensity totals for students.

Table 9.

Descriptive Statistics for Spring Peer Victimization Intensity by Totals (n=860).

	M	SD
Males	2.08	2.90
Females	2.50	2.94
Total	2.31	2.93

Note. Average total for Intensity is out of 26 items.

In summary, students ranged widely on the intensity level of their victimization at school. Although overall low average numbers of “yes” responses to the items in this section of the survey indicated that few students display behaviors that point to intense

victimization, still, many students marked multiple “yes” responses. In addition, some of the items had percentage “yes” responses of over 20%, suggesting that victimization was causing problems for some students. Most interesting for this study was the fact that so few students indicated that they chose to miss school because of fear of victimization. If the students did not feel they were choosing to miss school out of fear, logically, attendance rates would not be directly predictable from victimization levels in the regression equation portion of this study. In sum, several of the intensity items indicated students were facing severe levels of peer victimization intensity.

Research Question #3

What are the levels of school engagement for 6th grade students in middle school?

The data provided evidence that the students had differing levels of engagement in each of the three engagement subtypes, and students reported themselves as mostly engaged at school. Tables 10, 11, and 12 provide descriptive statistics for the engagement items include in the survey. Because the overall engagement has been divided into 3 different aspects (behavioral, cognitive, and emotional), the tables break up the engagement variable into those three components as well. Students were asked to respond to a series of 15 different engagement items (5 items for each subtype of engagement), indicating whether they “Never/Almost Never”, “Rarely”, “Sometimes”, “Often”, or “Always” display the described behavior. The responses were coded as follows: “Never/Almost Never”=1, “Rarely”=2, “Sometimes”=3, “Often”=4, or “Always”=5. At first glance, the obvious observation was that students had high levels of engagement. For most engagement items, the two highest frequencies came in the categories of “Often” and “Always.” This suggested that, for the most part, students felt they were usually

displaying engaged behaviors while at school. Averages for all engagement items ranged from 3.29 to 4.78 supporting this observation as well.

In the “behavioral” component of engagement, the mean level of engagement for all items was above 4. Survey items 3-7 were intended to assess the level of behavioral engagement with items addressing preparedness, work ethic, and following rules. The only two items that showed slightly lower levels of engagement were “I come to class prepared” and “I complete my work.” Both of these items had significant responses of “Sometimes,” 12.8% and 19.6% respectively. This seemed to be indicative of the typical middle school student and varying levels of work ethics amongst them. But again, for the most part, students viewed themselves as behaviorally engaged.

Table 10.

Descriptive Statistics for Fall School Engagement (Behavioral) (n=860).

Item	Description	1*	2	3	4	5	M	SD
3	I come prepared to class	0.5	0.2	12.8	46.5	40.0	4.25	.72
4	I treat classmates with respect	0.2	1.0	6.7	34.3	57.7	4.48	.69
5	I complete my work	0.5	3.1	19.6	42.2	36.5	4.09	.85
6	I treat teachers with respect	0.1	0.3	3.0	14.8	81.7	4.78	.51
7	I follow rules at school	0.0	1.2	6.8	27.7	64.2	4.55	.67

Note. *1=Never/Almost Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Always. Numbers in cells represent percentages of respondents.

The “Cognitive” component of engagement had more variability than the “Behavioral” component; the responses were more widely spread across possible student answers. Items 8-12 were intended to assess students’ cognitive engagement addressing their interest in work and people they work with at school. “I feel excited by school work” and “I talk with people at school” had the two lowest averages, indicating that students generally lacked excitement about their work at school, and they weren’t talking

to other students about their work while at school. However, the vast majority felt they were usually learning while in school, with that item averaging 4.39.

Table 11.

Descriptive Statistics for Fall School Engagement (Cognitive) (n=860).

Item	Description	1*	2	3	4	5	M	SD
8	I feel excited by school work	5.0	13.7	40.6	28.8	11.9	3.29	1.01
9	I am interested in school	3.7	10.0	38.7	29.5	18.1	3.48	1.02
10	I talk with people at school	12.3	15.9	25.7	23.3	22.9	3.29	1.31
11	I check my work for mistakes	4.1	11.5	25.4	34.5	24.6	3.64	1.09
12	I learn a lot in my classes	1.2	2.2	10.1	29.5	57.1	4.39	.84

Note. *1=Never/Almost Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Always. Numbers in cells represent percentages of respondents.

Similar to the “Cognitive” component of engagement, the “Emotional” component of engagement had more variability than the “Behavioral” component. Items 13-17 were intended to assess the student’s emotional investment in school. Items addressed how students felt about their teachers and how much they enjoyed the school environment. All means indicated responses between 3 and 4 indicating students felt they generally like their schoolwork and their teachers. However, the higher variability on these items indicated that some students did not feel an emotional connection to their schoolwork or their teachers.

Table 12.

Descriptive Statistics for Fall School Engagement (Emotional) (n=860).

Item	Description	1*	2	3	4	5	M	SD
13	I enjoy the school work I do	4.8	11.3	35.2	34.8	14.0	3.40	1.01
14	I feel teachers help me	7.2	10.6	26.0	26.0	30.3	3.64	1.21
15	My classroom is fun	4.4	9.5	32.1	30.4	22.5	3.56	1.07
16	My teachers praise me	4.6	8.9	23.1	32.6	30.7	3.75	1.12
17	My teachers understand me	3.8	6.5	18.9	37.8	32.9	3.89	1.06

Note. *1=Never/Almost Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Always. Numbers in cells represent percentages of respondents.

As all other survey items indicated that the victimization frequencies and victimization intensity increased from the fall to the spring surveys, it was not surprising

that the engagement variables suggested an overall decrease in engagement over that same time period. Most engagement items' means did somewhat decrease in the spring surveys indicating an overall decrease in engagement over that same time. Tables 13, 14, and 15 provide descriptive statistics for the spring engagement items.

In the "Behavioral" items, an increase in the percentage of students responding that they "Sometimes" were prepared for class and completed their work could speak to the typical decrease in engagement for students in the second half of the school year. The mean for, "I treat classmates with respect" decreased the most of all items in this category, suggesting students did not get along with each other as much in the spring as they did in the fall.

Table 13.
Descriptive Statistics for Spring School Engagement (Behavioral) (n=860).

Item	Description	1*	2	3	4	5	M	SD
3	I come prepared to class	0.2	1.4	13.2	45.1	40.0	4.23	.75
4	I treat classmates with respect	0.2	0.8	11.4	44.5	43.0	4.29	.72
5	I complete my work	0.7	4.6	25.4	41.0	28.3	3.92	.88
6	I treat teachers with respect	0.3	0.5	5.2	21.4	72.5	4.65	.63
7	I follow rules at school	0.3	1.9	14.4	34.7	48.7	4.30	.81

Note. *1=Never/Almost Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Always. Numbers in cells represent percentages of respondents.

Comparing fall to spring items in the "Cognitive" category, one can see that the means for each item lowered as well. Again, cognitive engagement and the other subtypes of engagement decreased over time. The biggest drop was in the, "I feel excited by school work" item. Students were cognitively less interested in school in the spring than they were in the fall.

Table 14.

Descriptive Statistics for Spring School Engagement (Cognitive) (n=860).

Item	Description	1*	2	3	4	5	M	SD
8	I feel excited by school work	8.6	18.9	40.5	23.8	8.2	3.04	1.05
9	I am interested in school	6.4	16.6	39.4	25.9	11.7	3.20	1.05
10	I talk with people at school	13.9	18.6	23.6	24.5	19.4	3.17	1.32
11	I check my work for mistakes	5.3	15.1	28.8	32.7	18.1	3.43	1.12
12	I learn a lot in my classes	1.2	2.8	12.3	38.9	44.8	4.24	.866

Note. *1=Never/Almost Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Always. Numbers in cells represent percentages of respondents.

As with the other two categories of engagement, the “Emotional” category items all dropped slightly in the spring survey. Students were less satisfied with their schoolwork and teachers than they were in the fall. Many students felt they were “rarely” helped or praised by their teachers, with 16.1% and 12.8% responding “rarely” in those two items respectively. And, 15.5% rarely enjoyed their schoolwork. The “Emotional” category of engagement had the greatest decrease across time from fall to spring, and the least amount of engagement came from this category overall as well.

Table 15.

Descriptive Statistics for Spring School Engagement (Emotional) (n=860).

Item	Description	1*	2	3	4	5	M	SD
13	I enjoy the school work I do	6.6	15.5	42.7	25.2	10.0	3.16	1.02
14	I feel teachers help me	9.4	16.1	22.2	26.9	25.3	3.43	1.28
15	My classroom is fun	8.0	12.1	38.0	25.9	16.0	3.30	1.12
16	My teachers praise me	4.2	12.8	26.3	31.2	25.5	3.61	1.12
17	My teachers understand me	6.7	10.0	21.5	34.8	27.0	3.65	1.17

Note. *1=Never/Almost Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Always. Numbers in cells represent percentages of respondents.

In conclusion, students showed widely varying levels of engagement overall. The responses to the items varied considerably. A clear trend in which spring engagement decreased in comparison to fall engagement became apparent in a comparison between the two survey implementations. Students seemed least engaged in the category of “Emotional” engagement, which included items regarding their enjoyment of schoolwork

and teachers. Students seemed most engaged in the category of “Behavioral” engagement, which included items regarding their behavior specific to following rules and treating other students appropriately. Their higher responses to the “Behavioral” items might be attributed to their desire to do well in school overall.

Research Question #4

What are the relationships between frequency of each of the three types of self-reported peer victimization in schools and absenteeism?

Table 16 presents the correlations between the frequency totals of each type victimization experience and student attendance. The correlations between the different types of victimization were statistically significant at the $p < .01$ level; however, the correlations between total absences and the three different victimization types were not statistically significant. The significant positive correlations found between the peer victimization variables were the following: exclusion and physical $r = .431$, exclusion and verbal $r = .626$, and physical and verbal $r = .471$. This suggests that students who were victims of one type of victimization were victims of other types as well. The statistically nonsignificant correlations between the frequency of the three different victimization types and attendance suggested that lower attendance rates were not related to a degree that will allow prediction of attendance rates from frequency of victimization. These nonsignificant correlations between the victimization variables and absenteeism supported the findings in the “Intensity” variable that students did not perceive that they were missing school because of victimization.

The mean for absenteeism of 36.71 explained that on average students were missing about 37 class periods during the fall trimester. However, the large standard

deviation of 32.63 indicates that students varied greatly on the number of classes they missed. This large standard deviation suggested that many students missed very few class periods, while some students missed many.

Table 16.
Pearson Correlation for Frequency of Victimization & Absenteeism (n=860).
(Fall)

	Absenteeism	Physical	Exclusion	Verbal
Absenteeism	--	.003	.036	.048
Physical		--	.431**	.471**
Exclusion			--	.626**
Verbal				--
<i>M</i>	36.71	.54	1.66	2.29
<i>SD</i>	32.63	.94	2.38	2.89

**Correlation significant at the 0.01 level (2-tailed).

The same correlations for victimization type frequencies and absenteeism are provided for the spring survey (Table 17). Again, all three victimization types were not statistically significantly correlated with absenteeism. However, the three different victimization types were significantly correlated with each other. All three statistically significant correlations for victimization type increased from their fall survey counterparts. The significant positive correlation between physical and exclusion was $r=.501$, between physical and verbal was $r=.593$, and between verbal and exclusion was $r=.692$. The high positive correlation between verbal abuse and exclusion may be indicative that the two variables are likely interrelated. In other words, exclusion can take place by verbal attacks, and many verbal attacks include exclusion.

The verbal victim total had a mean of 2.29 indicating that on average students were victims of verbal harassment (using the definition that students must be victimized more than one time to be classified a true victim). The standard deviation for this variable of 2.89 demonstrated that many students had no verbal victimization, while some

students experienced verbal victimization 7 or more times. Physical victimization had a mean of only .54 indicating that on average students were not facing physical abuse.

The Pearson correlation coefficients did not seemingly change much from fall to spring as demonstrated in Table 17. The victimization types were all still significantly positively correlated, while absenteeism was not significantly correlated with any abuse type. The mean number of classes missed rose significantly from 36.71 in the fall trimester to 53.09 in the spring trimester. This increase was attributed to a combination of more class periods total in the spring and an increase in missed school by students as the year progressed.

Table 17.
Pearson Correlation for Frequency of Victimization & Absenteeism (n=860). (Spring)

	Absenteeism	Physical	Exclusion	Verbal
Absenteeism	--	.007	.041	.044
Physical		--	.501**	.593**
Exclusion			--	.692**
Verbal				--
<i>M</i>	53.09	.60	2.00	2.94
<i>SD</i>	44.19	.99	2.49	3.28

**Correlation significant at the 0.01 level (2-tailed).

The fact that the three types of victimization did not have significant correlations with absenteeism made it likely that the peer victimization frequency construct would not have predictive power for absenteeism. This suggested that the victimization levels had no effect on absenteeism. However, the mean number of classes missed by students seemed to be significant, and more exploration into the root causes of absenteeism was warranted. In sum, the data revealed that none of the correlations between the three types of self-reported victimization and absenteeism were significant at the $p < .05$ level.

Research Question #5

What is the relationship between intensity of self-reported peer victimization in schools and absenteeism rate?

Correlation coefficients for the victimization type totals and absenteeism were not statistically significant, so as expected, the correlation between victimization intensity and absenteeism was not statistically significant at the $p < .05$ level either. The total number of intensity items was 15 items, so a mean total of those items of only 2.51 indicated that many students did not find changes in their own behavior based on the intensity of their own victimization. The nonsignificant correlation between absenteeism and victimization intensity ($r = .029$) suggested that the regression models would find intensity nonsignificant for predicting absenteeism similar to the peer victimization frequency variables as discussed previously. Table 18 provides the correlation coefficient between victimization intensity and absenteeism.

Table 18.
*Pearson Correlation for Intensity of Victimization & Absenteeism (n=860).
(Fall)*

	Absenteeism	Intensity
Absenteeism	--	.029
Intensity		--
<i>M</i>	36.71	1.87
<i>SD</i>	32.63	2.51

Table 19 describes the correlation between the spring victimization intensity variable and absenteeism. As found for the fall survey, the spring relationship was not statistically significant. Seemingly, the only major difference between the fall and spring data was the fact the average total absences in the spring increased from the fall. Again, this was likely due in part to the fact that the third trimester included more school days,

so the possibility of missing more days on average increases. The victimization intensity total increased from fall to spring.

Table 19.
*Pearson Correlation for Intensity of Victimization & Absenteeism (n=860).
(Spring)*

	Absenteeism	Intensity
Absenteeism	--	.036
Intensity		--
<i>M</i>	53.09	2.32
<i>SD</i>	44.19	2.51

None of the included peer victimization variables were significantly correlated with absenteeism. The correlation coefficient between victimization intensity and absenteeism was determined to be not statistically significant at the $p < .05$ level. This was contrary to one of the major hypotheses for this study - that victimization affects students' attendance. Students indicated in their surveys that they did not miss school because of victimization levels, and the statistically nonsignificant correlations indicated that they were not missing school because of their victimization levels either. It appeared a premise of this study (that victimization could possibly directly influence attendance) was not true.

Research Question #6

What are the relationships between levels of each of the three types of self-reported school engagement in schools and absenteeism?

Table 20 provides the correlation coefficients between the three subtypes of school engagement and absenteeism. In context, the significant correlations suggested that as a student's perceived engagement goes up, the number of classes he/she misses

goes down. Still, although these coefficients were significant at the $p < .05$ level, they were weak correlations.

Table 20.

Pearson Correlation for Intensity of Victimization & Absenteeism (n=860). (Fall)

	Absenteeism	Behavioral	Cognitive	Emotional
Absenteeism	--	-.098*	-.077*	-.062*
Behavioral		--	.516**	.470**
Cognitive			--	.748**
Emotional				--
M	36.71	22.16	18.09	18.24
SD	32.63	2.46	3.86	4.12

*Correlation significant at the 0.05 level (2-tailed).

**Correlation significant at the 0.01 level (2-tailed).

Table 21 provides the spring survey data correlations between engagement subtypes and absenteeism. Comparing the fall data correlations to the spring data correlations, all three relationships between the independent variables (school engagement) and the dependent variable (absenteeism) again had statistically significant negative correlations. However, a difference in the spring correlation coefficients was that they were significant at the $p < .01$ level, and each correlation increased somewhat from the fall data, though still low in value. This may be attributed to a simultaneous trend of an increase in missed school and a decreased engagement rate seen across the two survey administrations.

Table 21.

*Pearson Correlation for Intensity of Victimization & Absenteeism (n=860).
(Spring)*

	Absenteeism	Behavioral	Cognitive	Emotional
Absenteeism	--	-.150**	-.103**	-.090**
Behavioral		--	.596**	.543**
Cognitive			--	.774**
Emotional				--
M	53.09	21.39	17.07	17.16
SD	44.19	2.78	4.12	4.44

**Correlation significant at the 0.01 level (2-tailed).

The significance of the correlation coefficients between the engagement subtypes and absenteeism suggested the same relationship proposed by Buhs, Ladd and Herald (2006) in which engagement perhaps influences attendance directly, and peer victimization variables could possibly affect the levels of engagement for the students. All three types of engagement (behavioral, cognitive, and emotional) had statistically significant negative correlations $p < .05$ with absenteeism indicating that as student engagement levels went up, the number of classes they missed went down.

Research Question #7

What are the relationships between frequencies of each of the three types of self-reported peer victimization and the levels of each of the three types of self-reported school engagement?

All of the engagement subtypes were statistically significantly correlated with the victimization variables at the $p < .05$ level. All of the correlations were negative, indicating, in context, that as victimization levels went up, engagement levels went down. Many of the correlation coefficients were significant at the $p < .01$ level. The strongest of the correlation coefficients was between the exclusion victim variable and behavioral engagement $r = -.226$. All other correlations significant at the $p < .01$ level ranged between

-.112 and -.178. The weakest correlations were between victimization intensity and the behavioral and cognitive engagement variables ($r=-.072$ and $r=-.084$ respectively). Table 22 lists the correlation coefficients between each of the engagement subtypes and all of the victimization frequency and intensity variables.

Table 22.
Pearson Correlations for Intensity of Victimization & Engagement (n=860).
(Fall)

	Behavior	Cognitive	Emotional	Verbal Victim	Exclusion Victim	Physical Victim	Victim Intensity
Behavior	--	.516**	.470**	-.118**	-.226**	-.112**	-.151**
Cognitive		--	.774**	-.130**	-.178**	-.148**	-.072*
Emotional			--	-.126**	-.132**	-.127**	-.084*
Verbal				--	.626**	.471**	.496**
Exclusion					--	.431**	.489**
Physical						--	.246**
Intensity							--
<i>M</i>	22.16	18.09	18.24	2.29	1.66	.54	1.87
<i>SD</i>	2.46	3.86	4.12	2.89	2.38	.94	2.51

*Correlation significant at the 0.05 level (2-tailed).

**Correlation significant at the 0.01 level (2-tailed).

The correlation coefficients for all of the bivariate relationships were slightly lower in the spring administration of the survey (Table 23). This was mostly likely due to the fact that the engagement variables on average indicated a greater decrease over time than the increase in the victimization variables over the same time. Still, two of the coefficients were statistically significant at the $p<.05$ level, seven were significant at the $p<.01$ level, and three of the relationships no longer showed statistically significant relationships; cognitive engagement no longer was significantly correlated with physical victim frequency or the victimization intensity variable.

The strongest of the relationships was between the verbal victimization variable and the emotional engagement variable $r=-.141$. This observation coincided with the fact

that the emotional engagement variable decreased the most over time, while the verbal victim variable increased the most of the victimization variables in that same time period. It appeared, generally speaking, that the strongest relationships overall were between the verbal victimization variable and the differing engagement subtypes.

Table 23 lists the specific correlation coefficients between the victimization and engagement variables. Significant negative correlations between many of the victimization and engagement variables indicated that as victimization levels go up, school engagement levels go down. Although statistically different from zero, many of these correlations were still quite low, indicating weak relationships; these correlations reflected the scatterplots of all of the pairs of variables, in which no discernible linear pattern was readily apparent.

Table 23.
*Pearson Correlations for Intensity of Victimization & Engagement (n=860).
(Spring)*

	Behavior	Cognitive	Emotional	Verbal Victim	Exclusion Victim	Physical Victim	Victim Intensity
Behavior	--	.596**	.543**	-.125**	-.104**	-.047**	-.087*
Cognitive		--	.774**	-.101**	-.054	-.066	-.008
Emotional			--	-.141**	-.124**	-.093**	-.085*
Verbal				--	.692**	.593**	.558**
Exclusion					--	.501**	.584**
Physical						--	.463**
Intensity							--
<i>M</i>	21.39	17.07	17.16	2.94	2.00	.60	2.32
<i>SD</i>	2.78	4.12	4.44	3.28	2.49	.99	2.95

*Correlation significant at the 0.05 level (2-tailed).

**Correlation significant at the 0.01 level (2-tailed).

Significant to the overall research question for this study was the fact that overall the victimization variables were significantly, albeit weakly, correlated with the engagement variables. The significant negative correlations between these series of

variables indicated that as students were victimized at higher levels, their school engagement went down. This served as evidence that perhaps the effects of victimization on attendance were mediated by engagement, and certainly as students were victimized more, in general, their engagement while at school tended to decline.

Research Question #8

Does the frequency of victimization (by victimization type) and victimization intensity for affected youths predict their subsequent absenteeism?

Multiple regression procedures were used to determine whether frequency of victimization (by victimization type) and victimization intensity were predictive of absenteeism for the students. The predictors included all victimization type frequency totals as well as the victimization intensity total; the independent variable was entered as total absences for each student.

Before multiple regression analyses can be performed on a set of data, several assumptions about the data must be met to ensure reliability and validity of the results. First, a sufficient sample size is needed for the analyses. For multiple regressions, it is generally expected to have at least 15 cases per predictor variable (Pallant, 2005). This requirement was exceeded for this particular study.

In addition, an assumption for multiple regression analysis is normality of the data. Absenteeism data were highly positively skewed, and they were log transformed for the purposes of these analyses. Multiple regression as a model for predicting a dependent variable demands data with acceptable levels of skewness and kurtosis to ensure normality of the data; this ensures no systematic pattern to the error for the predicted values of the dependent variable. The absenteeism variable, computed as a total of

students' absences, had unacceptable skewness and kurtosis because so many of the students had no or very few absences. Figure 1 demonstrates the skewness of the dependent variable. Prior to the log transformation of the absenteeism variable, the kurtosis statistic was 5.015 and the skewness statistic measured 1.81.

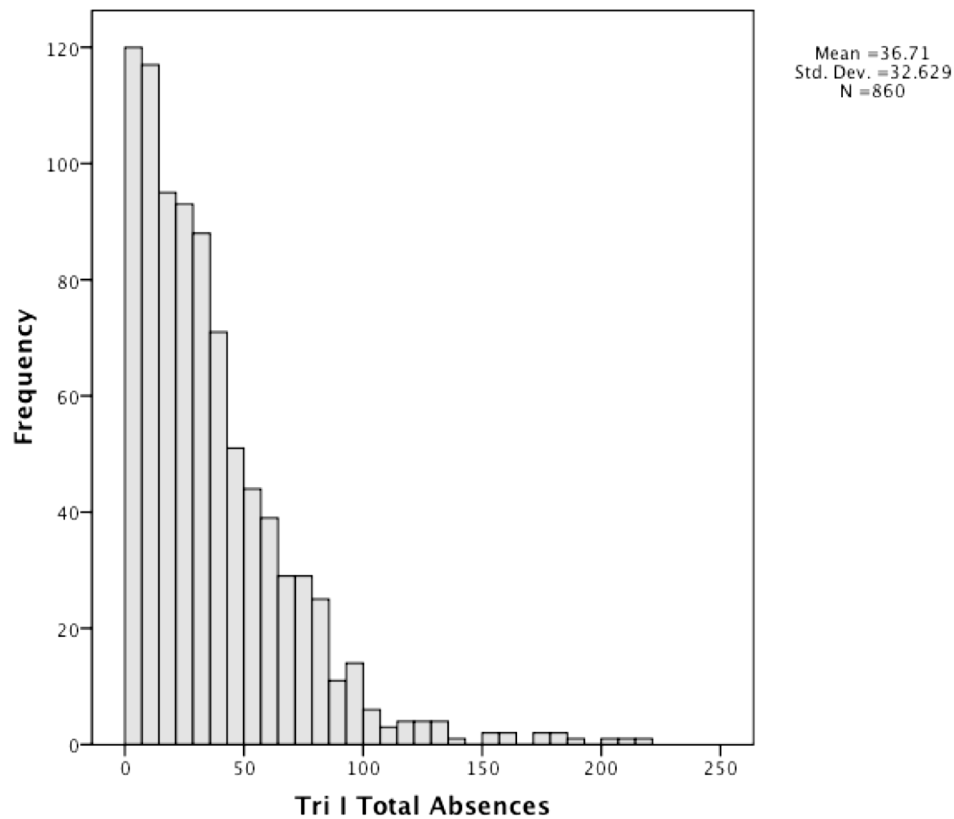


Figure 3. Skewed distribution of absenteeism variable prior to transformation.

To transform the data to get acceptable skewness and kurtosis, a simple log10 transformation was applied. After log transformation of the absenteeism variable, the skewness and kurtosis statistics became much more appropriate for multiple regression at -.071 and -.505 respectively. These values indicated the log transformation had corrected the non-normality of the data to acceptable values of less than 3 (Tabachnick & Fidell, 1989).

Figure 4 shows the effect of the log transformation on the distribution of the absenteeism variable.

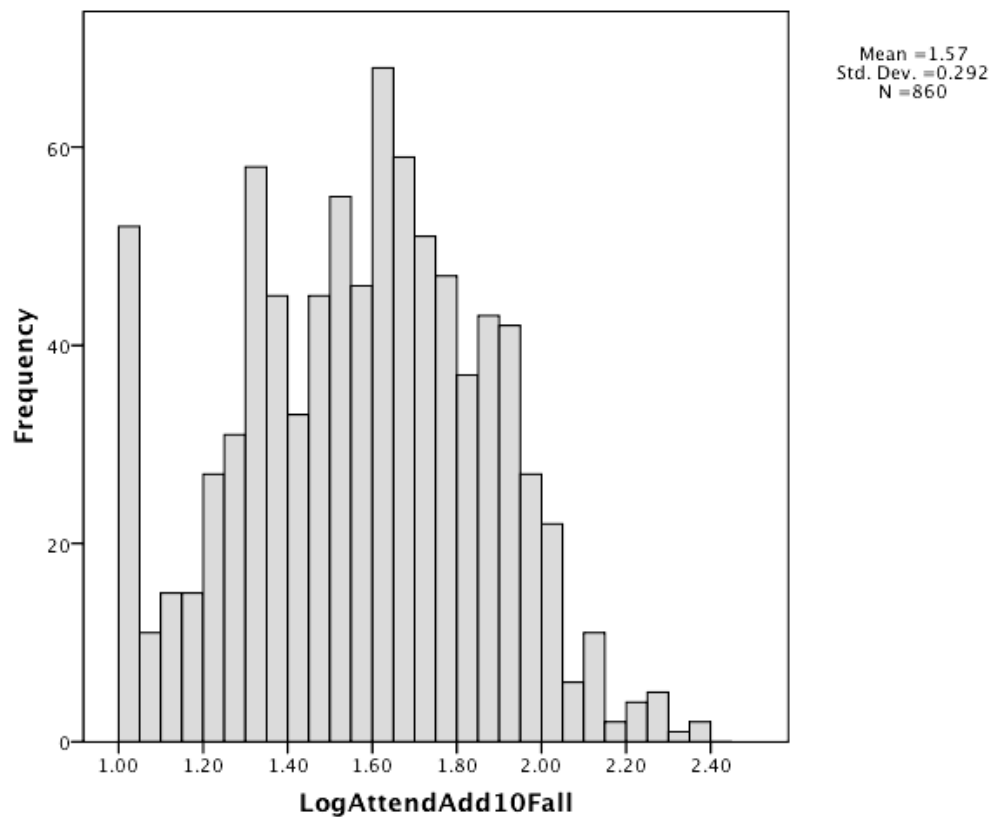


Figure 4. Distribution of absenteeism variable after log transformation.

When a log transformation is applied to data to rectify such situations, the interpretation of the model changes slightly. Whereas typically a regression coefficient for a dependent variable can be interpreted as the expected change in the dependent variable for a one unit change in the independent variable (holding all other variables constant), with log transformed data, the coefficient becomes the change in the log of the dependent variable for a one unit change in the independent variable holding all other variables constant. In addition, because of a skewed distribution, the victimization

intensity variable was log transformed. After transformation, the intensity variable had sufficient skewness and kurtosis for regression analysis as well.

The peer victimization frequencies by type were not significant in the prediction of attendance. The overall quality of the regression ($R^2=.005$, $p>.05$) indicated that only .5% of the variability in attendance was explained by the frequency and intensity of victimization variables. Table 24 documents the results of the regression equation.

Table 24.

Victimization as Independent Variables Regression Equation Results.

R	R Square	Adjusted R Square	Std. Error of Estimate
.074	.005	.001	.292

In an attempt to determine if any of the independent variables were predictive of attendance, the independent variables were removed one at a time. No significant gain in the coefficient of determination statistic resulted in this procedure, and at no point were any of the independent variables significant in prediction at the $p<.05$ level. Table 25 provides the coefficients for each of the predictor variables and the corresponding statistical nonsignificance of all four predictor coefficients.

Table 25.

Coefficients for Regression Equation for Dependent Variable of Absenteeism and Victimization Constructs as Independent Variables.

	B	Std. Error	Beta	t	Sig.
(Constant)	1.561	.014		114.752	$\leq .001$
Victimization - Intensity	.001	.005	.011	.276	.783
Victimization - Verbal	.007	.005	.070	1.491	.136
Victimization - Physical	-.014	.012	-.046	-1.180	.238
Victimization - Exclusion	.001	.006	.070	.222	.825

Even though the analysis did not have significant results, as is standard with regression analyses, the residuals were analyzed for normal distribution and for lack of

homoscedasticity. Random residual patterns ensure the equation is not making systematic error in prediction of the dependent variable. A normal probability plot of the standardized residuals indicated normally distributed residual error, and a plot of the dependent variable on the x-axis, and standardized residuals on the y-axis revealed no pattern; this suggested lack of homoscedasticity for the model.

Similar to the fall data, the spring regression model showed no significant predictive abilities of the victimization variables on absenteeism. An $R^2=.003$, $p>.05$, echoed the results of the multiple regression analysis using the fall data.

In summary, the victimization frequency variables broken into three subtypes of victimization, as well as the victimization intensity variable, had no predictive value for attendance rates. In short, students were not missing more school because of increased victimization. The regression equation demonstrated no significant predictive relationship between the independent variables of frequency and intensity of victimization and the dependent variable of student absenteeism. The R^2 of the equation was nonsignificant and none of the independent variables had regression coefficients significantly different from zero.

Research Question #9

Do the levels of each of the three types of self-reported school engagement behaviors predict subsequent absenteeism?

No statistically significant predictive relationship between the independent variables of school engagement type and the dependent variable of student absenteeism was found; the R^2 of the equation was nonsignificant. However, the regression weight for the independent variable, behavioral engagement, was statistically significantly different

from zero. The other two variables (cognitive and emotional engagement) were nonsignificant at the $p < .05$ level. An R^2 of .016 indicates that the engagement variables explained 1.6% of the variability in absenteeism, which was not enough to suggest a strong relationship between the variables. Table 26 describes the strength of the multiple regression analysis and Table 27 displays the coefficients for the different engagement subtypes.

Table 26.

Engagement as Independent Variables Regression Equation Results.

R	R Square	Adjusted R Square	Std. Error of Estimate
.127	.016	.013	.291

Table 27.

Coefficients for Regression Equation for Dependent Variable of Absenteeism and Engagement Constructs as Independent Variables.

	B	Std. Error	Beta	t	Sig.
(Constant)	1.903	.090		21.205	$\leq .001$
Engagement - Behavior	-.014	.005	-.115	-2.879	.004
Engagement - Emotional	.001	.004	.012	.236	.813
Engagement - Cognitive	-.002	.004	-.031	-.574	.566

One would interpret the statistically significant behavioral engagement coefficient as the following: for a one-unit change in the engagement behavior total, a .014 decrease in the log10 of the absenteeism variable is expected. Even though the p-value of the coefficient indicated statistical significance, the interpretation of the coefficient was not warranted with such a small R^2 value for the model. Lack of homoscedasticity and normal distribution of error terms was checked again with the appropriate graphs indicating no systematic error patterns.

In summary, the engagement variables did not appear significant in the prediction of students' absences. This was in direct contrast to the original hypothesis that student

engagement is significantly related to attendance. Regression modeling did not indicate that student engagement and attendance were significantly related.

Research Question #10

Does the frequency of victimization (by victimization type) and victimization intensity for affected youths predict total school engagement?

The victimization variables did not statistically significantly predict school engagement for students. Two of the victimization variables were significant in the equation at the $p < .05$ level (exclusion victim total and verbal victim total), however a weak R^2 of .045 indicates only 4.5% of the variability in total engagement was explained by the victimization variables. The total engagement variable was sufficiently normal to conduct a multiple regression model. Figure 5 shows the variable distribution.

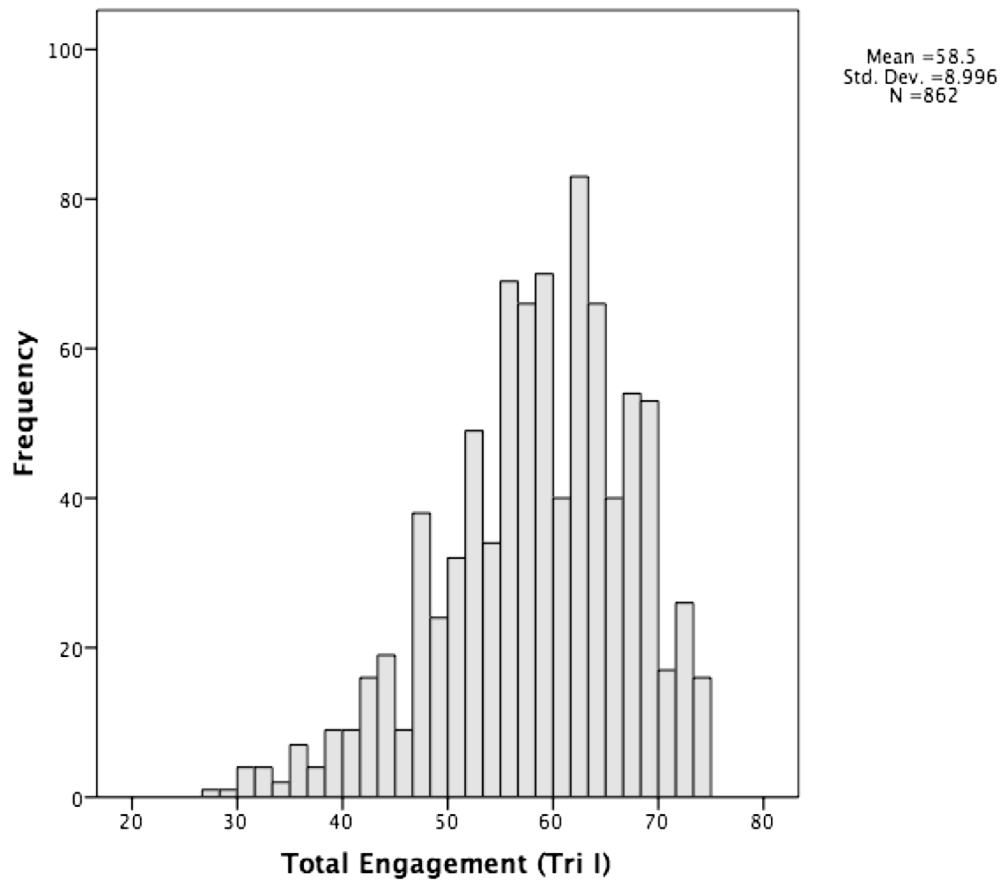


Figure 5. Distribution of total engagement variable.

As with the previous regression models, the R^2 indicated very little of the variability in engagement was explained by victimization. Table 28 displays the results of the regression analysis.

Table 28.

Victimization Variables as Independents Regression Equation Results.

R	R Square	Adjusted R Square	Std. Error of Estimate
.212	.045	.041	8.812

Two of the four predictor variables in the regression equation were significantly different from zero ($p < .05$). Physical victimization and exclusion were predictive of engagement. However, the small R^2 still indicated that the equation overall did not

provide a strong model for predicting engagement overall. Contrary to the original hypotheses for this study, victimization and engagement were not strongly associated. Table 29 displays the coefficients for each victimization variable and their corresponding p-values.

Table 29.
Coefficients for Regression Equation for Dependent Variable of Total Engagement and Four Victimization Constructs as Independent Variables.

	B	Std. Error	Beta	t	Sig.
(Constant)	60.002	.409		146.848	≤.001
Victimization - Intensity	-.046	.143	-.013	-.322	.747
Victimization - Verbal	-.015	.144	-.005	-.102	.919
Victimization - Physical	-.763	.369	-.080	-2.070	.039
Victimization - Exclusion	-.585	.171	-.155	-3.419	.001

The statistically significant negative coefficient of exclusion in the prediction of total engagement would be interpreted that as victimization goes up, engagement goes down. The other victimization types were not statistically significant in the prediction of student engagement levels.

Research Question #11

Does treatment of the peer victimization and school engagement variables as latent constructs rather than direct measurements serve to provide a measurement model with adequate fit?

Prior to testing the structural equation model, the measurement model for the two latent variables for peer victimization and student engagement needed to be assessed. The latent variable representing overall victimization combined the measurement of four different victimization components. Three different subtypes of victimization (verbal, physical, and exclusion), as well as a victimization intensity measure were included to

form the latent variable of peer victimization. Engagement was treated as a latent variable as well, with the three identified components of behavioral, cognitive, and emotional engagement types serving to construct the latent construct used in the model. Figure 6 displays the hypothesized measurement model for the latent constructs of peer victimization and students' school engagement. The measurement model represents measured variables as squares and latent variables as ovals. Latent variables have one fixed parameter to allow for the scaling of each other indicator included as part of the latent construct.

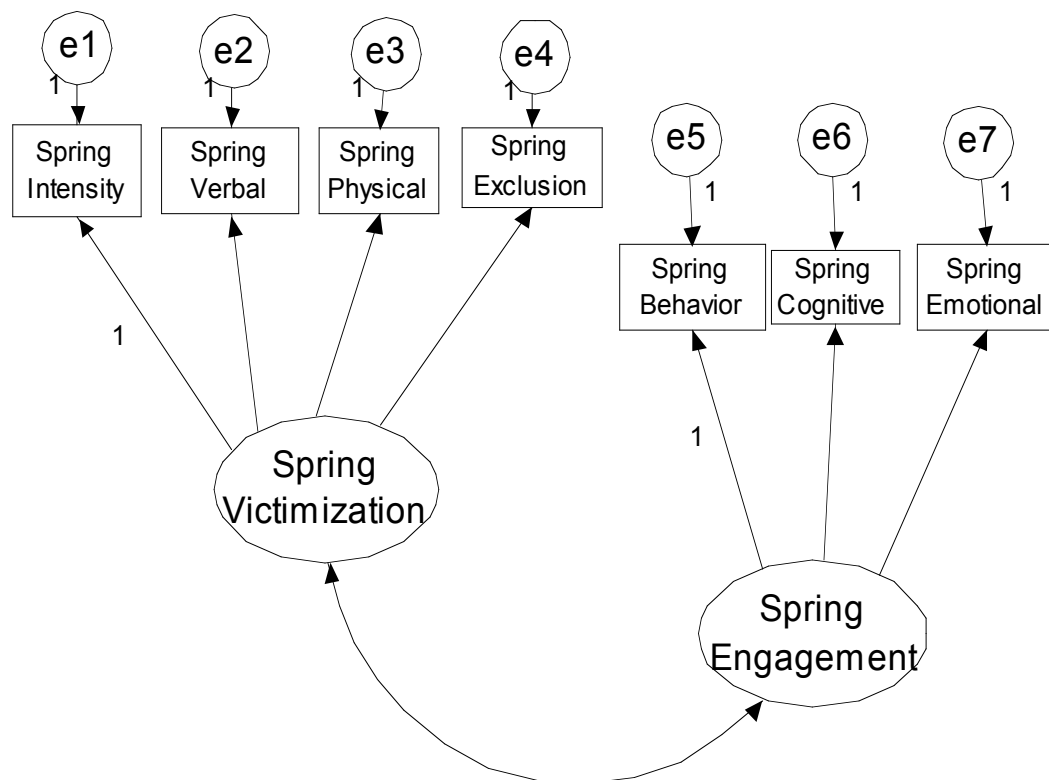


Figure 6. Hypothesized latent constructs for peer victimization and school engagement (spring data).

SEM Assumptions

Prior to model estimation, the data were examined to determine if they met the assumptions necessary for the structural equation modeling. Assumptions for structural equation modeling are the following: normality of distributions, linearity, appropriate sample size, and appropriate treatment of missing data.

Normality

Histograms for each variable provided evidence that all variables except the attendance variable and victimization intensity variable were sufficiently normal. The attendance variable and the peer victimization intensity indicator were log transformed to achieve acceptable normality prior to model analysis. Both independent and dependent indicators were determined to be normal within skew and kurtosis ranges of ± 1.0 , acceptable values for SEM analysis (Tabachnick & Fidell, 1989).

Linearity

Upon calculation of the correlation coefficients for all of the bivariate relationships, the scatterplots were produced and studied to determine linearity. Partial plots for all variable pairs indicated linear, albeit weak, relationships between each pair of variables included in the model. No nonlinear relationships seemed to exist between any two of the included variables.

Sample Size

A sample size of 860 was sufficient for model estimation using the acceptable criteria of 10 subjects per estimated parameter (Tabachnick & Fidell, 1989). The largest hypothesized model for this study included 11 parameters, so according to the established criterion sample size over 110 would be sufficient; however, generally, 200 cases is the

lowest acceptable sample size for SEM estimation (Tabachnick & Fidell, 1989). 860 cases for the estimation of the hypothesized models were sufficient.

Missing Values

As previously described, all students with missing data were removed from the dataset to allow for model estimation. Students with missing data were dropped listwise from the dataset because data imputation for the percent of missing values did not seem reasonable.

Outliers

Data were previously examined for outliers and nonsensical values as part of the data cleaning process. With the removal of cases with data missingness, no measures were deemed outliers in each of the variables. In addition, the AMOS output for each model did not indicate any multivariate outliers with statistically significant Mahalanobis distances for cases included in estimation. Kline (1998) recommends using a conservative cutoff for testing significance of Mahalanobis distance (e.g. $p < .001$), and no cases were significant at that prescribed level.

Table 30 displays the correlation coefficients between all of the fall survey variables used to estimate the measurement and structural models, and Table 31 displays the correlation coefficients between the spring survey variables.

Table 30.

Correlation Coefficients between variables used in structural equation models (Fall data).

	Behavior	Cognitive	Emotional	Verbal Victim	Exclusion Victim	Physical Victim	Victim Intensity	Attendance (Logged)	GPA
Behavior	--	.516**	.470**	-.118**	-.226**	-.112**	-.151**	-.098**	.372**
Cognitive		--	.774**	-.130**	-.178**	-.148**	-.072*	-.077*	.219**
Emotional			--	-.126**	-.132**	-.127**	-.084*	-.062**	.149**
Verbal				--	.626**	.471**	.496**	.048	-.121**
Exclusion					--	.431**	.489**	.036	-.180**
Physical						--	.246**	.003	-.050
Intensity							--	.029	-.095**
Attendance								--	-.329**
GPA									--
<i>M</i>	22.16	18.09	18.24	2.29	1.66	.54	1.87	1.57	3.18
<i>SD</i>	2.46	3.86	4.12	2.89	2.38	.94	2.51	.292	.642

*Correlation significant at the 0.05 level (2-tailed).

**Correlation significant at the 0.01 level (2-tailed).

Table 31.

Correlation Coefficients between variables used in structural equation models (Spring data).

	Behavior	Cognitive	Emotional	Verbal Victim	Exclusion Victim	Physical Victim	Victim Intensity	Attendance (Logged)	GPA
Behavior	--	.596**	.543**	-.125**	-.104**	-.047**	-.087*	.485**	-.150**
Cognitive		--	.774**	-.101**	-.054	-.066	-.008	.340**	-.103**
Emotional			--	-.141**	-.124**	-.093**	-.085*	.278**	-.090**
Verbal				--	.692**	.593**	.558**	-.126**	.044
Exclusion					--	.501**	.584**	-.149**	.041
Physical						--	.463**	-.104**	.007
Intensity							--	-.114**	.036
Attendance								--	-.364**
GPA									--
<i>M</i>	21.39	17.07	17.16	2.94	2.00	.60	2.32	1.70	3.15
<i>SD</i>	2.78	4.12	4.44	3.28	2.49	.99	2.95	.301	.647

*Correlation significant at the 0.05 level (2-tailed).

**Correlation significant at the 0.01 level (2-tailed).

The original hypothesized measurement model was tested using AMOS software. The estimation method for the model was maximum likelihood. Model fit was examined using the chi-square statistic, root mean square error of approximation (RMSEA), root mean square residuals (RMR), and comparative fit index (CFI). Kline recommends reporting at least four tests to assess model fit (1998). These four fit indices were chosen as they are seemingly the most frequently used in other studies using SEM.

Model chi-square is the most common fit test for structural equation models. The chi-square value is not significant if there is good model fit. Generally, if model chi-square significance is $<.05$, the model should be rejected. A chi-square goodness of fit index, $\chi^2(13, N=860) = 48.166, p<.001$, statistically significant at the .05 level, indicated a poor fitting model. However, with a large sample size (chi-square has a great deal of power), chi-square should be interpreted cautiously; often, other measures of fit are used in conjunction with chi-square to determine overall model fit (Kelloway, 1998). In large samples, virtually all models will result in poor fit according to the chi-square goodness of fit index.

In addition to chi-square, the root mean square error of approximation (RMSEA) was evaluated for the model. Generally, a RMSEA statistic of less than or equal to .05 indicates good fit (Kelloway, 1998), and values less than or equal to .08 indicate adequate fit (Tabachnick & Fidell, 1989). An RMSEA of .056 indicated good fit for this latent structure measurement model.

Another measure of fit, root mean square residuals (RMR as reported by AMOS) measures the absolute value of the covariance residuals, and the closer the RMR to 0.0, the better the fit (Tabachnick & Fidell, 1989). Values of less than .08 are desired. The

standardized root mean square residuals, (RMR=.0265) was a third fit index indicating good fit for the measurement model.

The comparative fit index (CFI) compares the structural model with a null model that assumes the latent variables are uncorrelated. CFI is a measure relatively unaffected by sample size (Kline, 1998), making it a proper choice for this particular study.

Comparative fit index statistics of greater than .90 (Kelloway, 1998) or greater than .95 to indicate good fit (Tabachnick & Fidell, 1989). The comparative fit index statistic for this model was .986 indicating good fit by conventional standards (CFI>.95).

In summary, the fit indices for the proposed measurement model indicated good fit overall. Interpretation of the path coefficients was warranted. The fit indices for the measurement model are listed in Table 32. No post hoc modifications were performed as all included path coefficients were statistically significant ($p < .05$), and other modifications were substantively unreasonable. The final model, including significant standardized coefficients is illustrated in Figure 7. The strong standardized path coefficients between the latent variables and their corresponding indicator variables suggested sound latent structure for the two included variables.

Table 32.
Fit Indices for Hypothesized Measurement Model (n=860).

<i>Fit Index</i>	<i>Spring Data Model</i>
χ^2	48.166
<i>df</i>	13
<i>CFI</i>	.986
<i>RMR</i>	.0265
<i>RMSEA</i>	.056 [.040, .073]

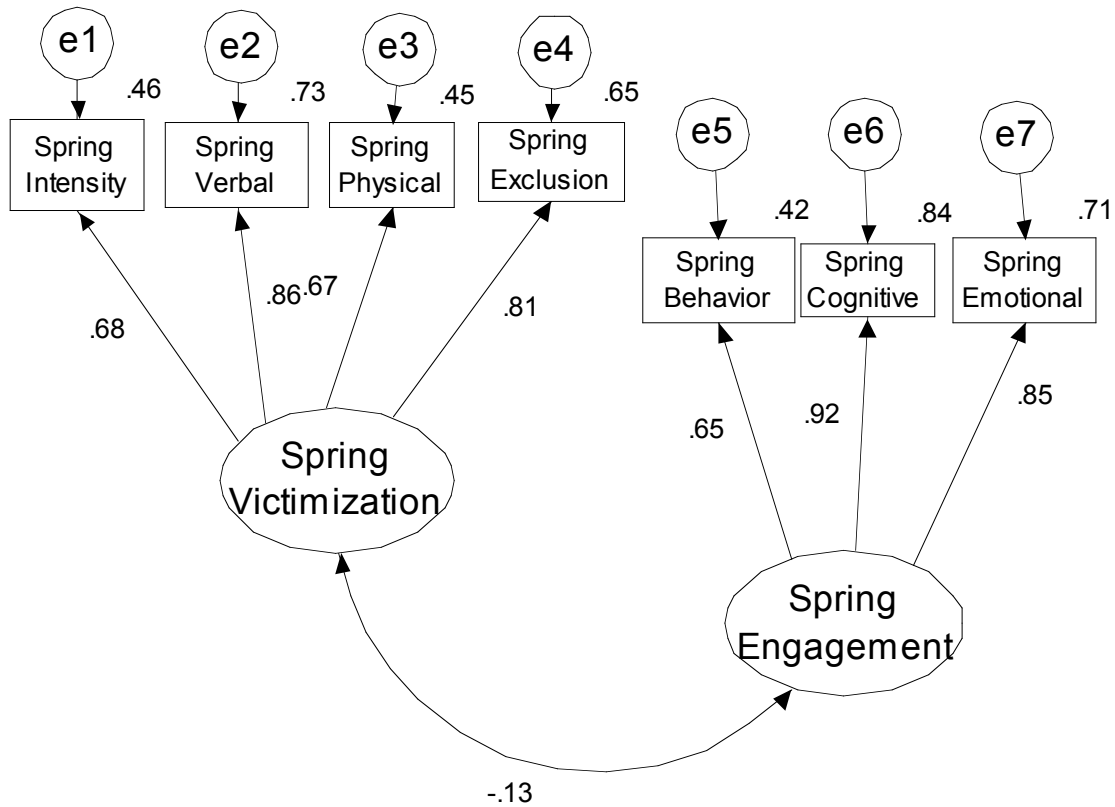


Figure 7. Hypothesized measurement model including standardized coefficients (*spring data*).

The path coefficients for the fall data version of the measurement model were all statistically significant at the $p < .05$ level. All path coefficients between latent variables and the indicator variables ranged between .67 and .92 indicating sound latent structure and verifying that each indicator variable contributed significantly to the overall latent construct. A negative standardized path coefficient (-.13) between victimization and engagement suggests that as a student faced more victimization his/her engagement declined. The standardized path coefficients and their corresponding p-values are displayed in table 33.

Table 33.

Hypothesized latent constructs for peer victimization and school engagement (spring data).

Independent	Dependent	Standardized Estimate	P
Victimization	Intensity	.679	
Victimization	Verbal	.855	≤.001
Victimization	Physical	.672	≤.001
Victimization	Exclusion	.805	≤.001
Victimization	Engagement (Correlation)	-.128	
Engagement	Behavioral	.648	
Engagement	Cognitive	.915	≤.001
Engagement	Emotional	.846	≤.001

The robustness of the measurement model and the corresponding statistically significant path coefficients between all included variables confirmed that a latent construct treatment of the peer victimization and student engagement variables was appropriate.

Research Question #12

Does treatment of peer victimization, student engagement, attendance, and achievement variables different from the study by Buhs, Ladd and Herald (2006) serve to provide a measurement model with adequate fit?

The proposed structural equation model for this study is displayed previously in Figure 2. The model included a latent construct representation of peer victimization and student engagement, as the fit for the previous measurement models appeared adequate to treat both of these variables as latent constructs. In addition, the attendance and intensity variables were transformed via the same log procedure as in the regression equation component of the study to provide adequate normality for structural equation modeling. The achievement measure was included as student grade point average. Using AMOS, the relationships were examined between peer victimization, a latent variable with four indicators (verbal, physical, exclusion, and intensity), school engagement, a latent

variable with three indicators (behavioral, cognitive, and emotional), attendance, and achievement.

Fit indices for this model indicated adequate fit. The same fit indices used to evaluate the previous model were employed for this model. A chi-square goodness of fit index, $\chi^2(23, N=860) = 163.474$, $p \leq .001$, was significant at the .05 level, indicating a poor fitting model. Again, chi-square goodness of fit should be interpreted cautiously with large samples such as that found in this study.

An RMSEA of (0.084) for this model indicated potentially adequate fit using standard criterion ($RMSEA < .08$). The confidence interval for RMSEA included values less than .08 [.072, .097], indicating that fit for the model could be considered adequate. For the tested model, a RMR of .0430 echoed the original evaluation of RMSEA – the model fit was adequate. The comparative fit index statistic for this model was .952 indicating good fit by conventional standards ($CFI > .95$).

In sum, the fit indices for the hypothesized structural model were somewhat contradictory, but overall, the fit of the model was adequate. An unfortunate aspect of structural equation modeling is the lack of universally accepted criteria for determining model fit. It is up to the researcher to judge the fit statistics and make an appropriate determination. In this case, it seemed reasonable to examine the paths of the model, but still the model interpretation should be done cautiously. Of all the paths, the only nonsignificant relationship at $p < .01$ was between the latent variable of “Spring Victimization” and “Attendance.” The standardized path coefficients for the hypothesized model are shown in Figure 8.

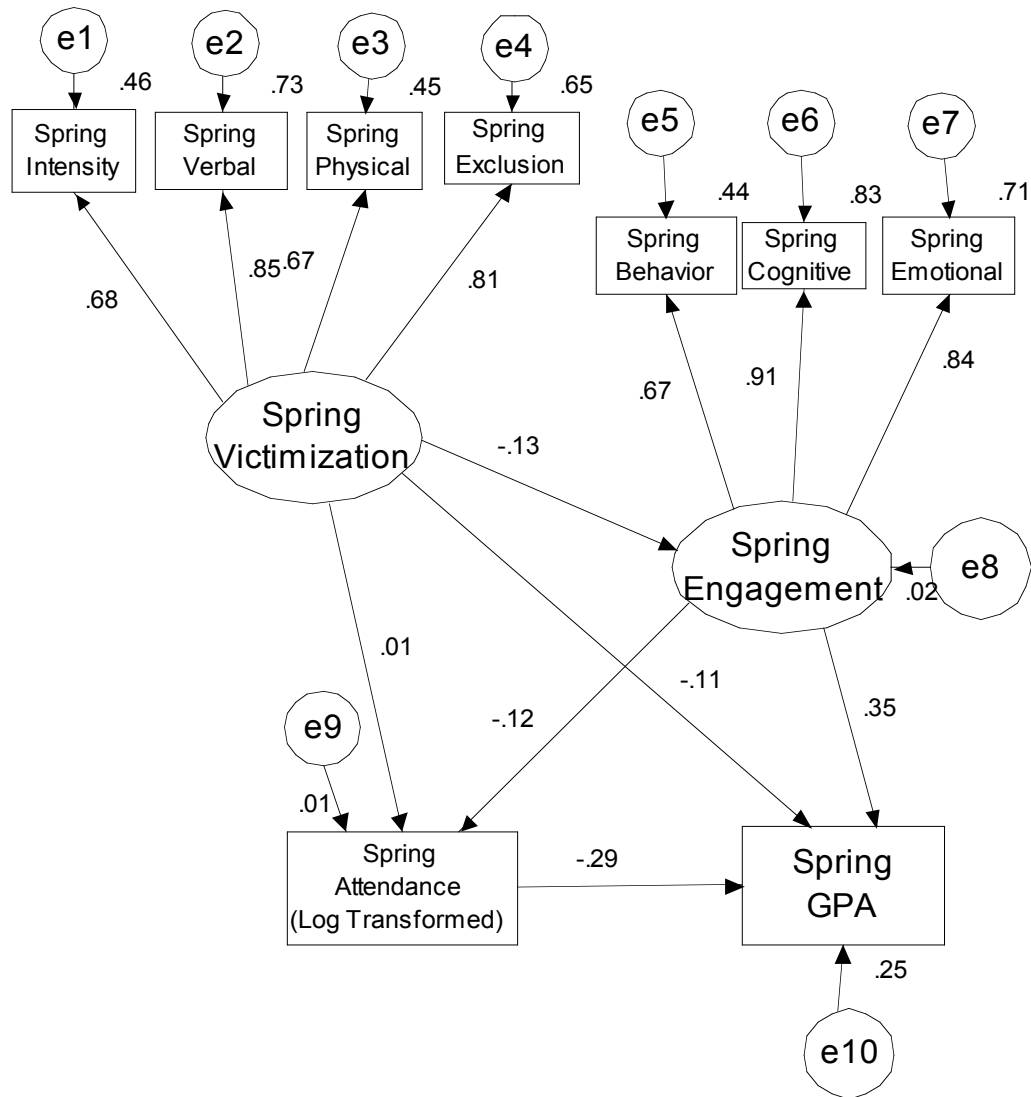


Figure 8. Standardized path coefficients for hypothesized model treating victimization and engagement as multi-dimensional latent constructs, and treating school avoidance as actual school attendance.

For the unadjusted hypothesized model, the standardized regression weights for each included path and their corresponding statistical significance are described in Table 34.

Table 34.

Standardized Path Coefficients and Associated P-values: Hypothesized Structural Model.

Independent	Dependent	Standardized Estimate	P
Victimization	Engagement	-.130	≤.001
Engagement	Attendance	-.118	≤.001
Victimization	Attendance	.014	.713
Victimization	Intensity	.680	
Victimization	Verbal	.853	≤.001
Victimization	Physical	.672	≤.001
Victimization	Exclusion	.807	≤.001
Engagement	Behavior	.665	
Engagement	Cognitive	.911	≤.001
Engagement	Emotional	.841	≤.001
Engagement	Achievement	.347	≤.001
Attendance	Achievement	-.287	≤.001
Victimization	Achievement	-.109	≤.001

Standardized path coefficients allow comparison of the strengths of the relationships. Higher levels of victimization indicated lower engagement, and lower levels of engagement indicated lower attendance rates. The strongest relationship was between engagement and achievement; logically, more engaged students do better in school. Statistically significant negative coefficients between attendance and achievement as well as victimization and achievement suggested that as the number of missed classes went up, achievement went down, and as victimization levels went up, achievement went down as well. As was suggested by preliminary analyses (correlation coefficients and regression equations), victimization was not statistically significantly related to attendance. All of the latent variable components had strong path coefficients repeating the indication of sound latent structure from the first analysis.

The statistically significant paths of interest were between victimization and engagement (standardized coefficient = -.130), engagement and attendance (standardized coefficient = -.118), engagement and achievement (standardized coefficient = .347),

victimization and achievement (standardized coefficient = $-.109$), and attendance and achievement (standardized coefficient = $-.287$).

Model modification indices suggested by the AMOS analysis were not reasonable adjustments to the model. Correlating errors between latent variable indicators were the only indicated changes, and substantively, these paths did not seem reasonable. So another model (Figure 9) was analyzed after deleting the single path in the model that had a nonsignificant coefficient.

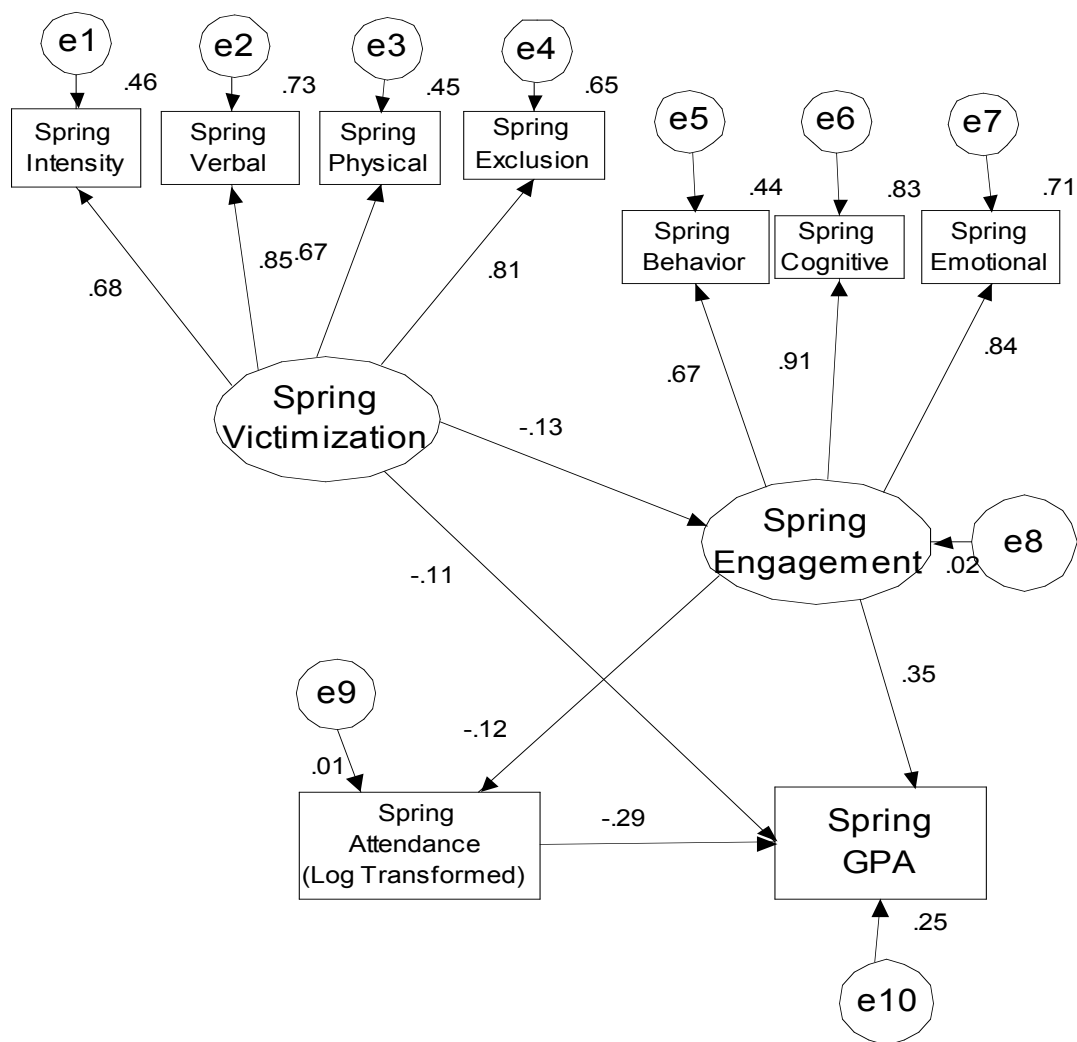


Figure 9. Adjusted measurement model with standardized path coefficients.

The same fit indices used to evaluate the *a priori* model did not indicate substantial improvement for the *post hoc* model or change in the significance of the standardized path coefficients. A chi-square goodness of fit index, $\chi^2(17, N=860) = 163.609$, $p \leq .001$, significant at the .05 level, still indicated a poor fitting model. And, similar to the *a priori* model an RMSEA of .082 and an RMR of .0431 indicated adequate fit. The only fit index suggesting overall good fit was a CFI of .952 using standard criteria.

Additionally, when comparing nested models, the parsimony normed fit index (PNFI) is used to determine the better fitting of the two models (Tabachnick & Fidell, 1989). When comparing two nested models, the model with the higher PNFI is better. The PNFI of the *a priori* model was .604 compared to the *post hoc* model (PNFI = .630) indicating potentially better fit for the adjusted model. Generally, a PNFI $> .50$ indicates good fit, so both models fit well according to the PNFI index criterion. Ultimately, the fit indices for the adjusted model were contradictory, and no substantial improvement was found when the changes were made to the model. Table 35 displays the fit indices of the two structural models.

Table 35.
Fit Indices for Structural Model 1 and Adjusted Structural Model 1 (n=860).

<i>Fit Index</i>	<i>Hypothesized Model</i>	<i>Adjusted Model</i>
X^2	163.474	163.609
<i>df</i>	23	24
<i>CFI</i>	.952	.952
<i>RMR</i>	.227	.226
<i>RMSEA</i>	.084 [.072, .097]	.082 [.071, .094]
<i>PNFI</i>	.604	.630

Both of the models had similar fit, and both had adequate fit overall using conventional fit indices criteria. The path coefficient of interest (that between victimization and attendance) was not statistically different from 0.0. Additionally, other path coefficients were statistically significant but still relatively weak, as in the case of paths between engagement and attendance, victimization and engagement, and victimization and achievement. Neither model contradicted the Buhs, Ladd, and Herald model, nor did either provide sufficient evidence of a better understanding of the peer victimization and student attendance link. The model was robust, but the path coefficients indicated that the hypothesized relationships between peer victimization and attendance were not as strong as originally believed. Again, the relatively low standardized coefficients indicated that although the model had good fit, the relationships between the variables of interest were not strong.

Research Question #13

Does a structural equation model controlling for the fall survey data by using multiple group analysis, with the same latent treatment of the peer victimization and school engagement variables, demonstrate good model fit?

Structural equation modeling can handle repeated measures data. For the first two structural equation models evaluated in this study, the data were treated as a single measure. It seemed reasonable to treat the victimization measures as variables affected by the experiences of the students up to that point in time. However, by giving the survey to the students twice, the data can be treated as repeated measures. A multiple group analysis model suggested by Kline (1998) includes each pair of time-1 and time-2 measures in the specified variables, which in essence, models the repeated measures

nature of the data. The assumption driving this model specification is that by including both the time-1 and time-2 measures as part of the variables in the model, the researcher was in effect, controlling for the fall data.

Figure 10 displays the repeated measures version of the structural model. Each variable had the same direct paths included from the previously defined model; however, in AMOS, a multiple group analysis was employed. By using a grouping variable, that defined a measure as either fall or spring for each student, the fall measure and its spring counterpart were both included in the model. AMOS evaluated coefficients for each grouping variable, and the fit indices described overall model fit. For this model the victimization variable was included as a latent construct as the previous results suggested the victimization construct was statistically sound. The same paths between the variables from the previous model were included in this model. In other words, direct paths between victimization and engagement, attendance, and achievement were included, as well as paths between engagement and attendance, attendance and achievement, and engagement and achievement. By starting with all possible relevant paths in the *a priori* model, the researcher adjusted the model according to the analysis results to include only statistically significant paths with a second *post hoc* model.

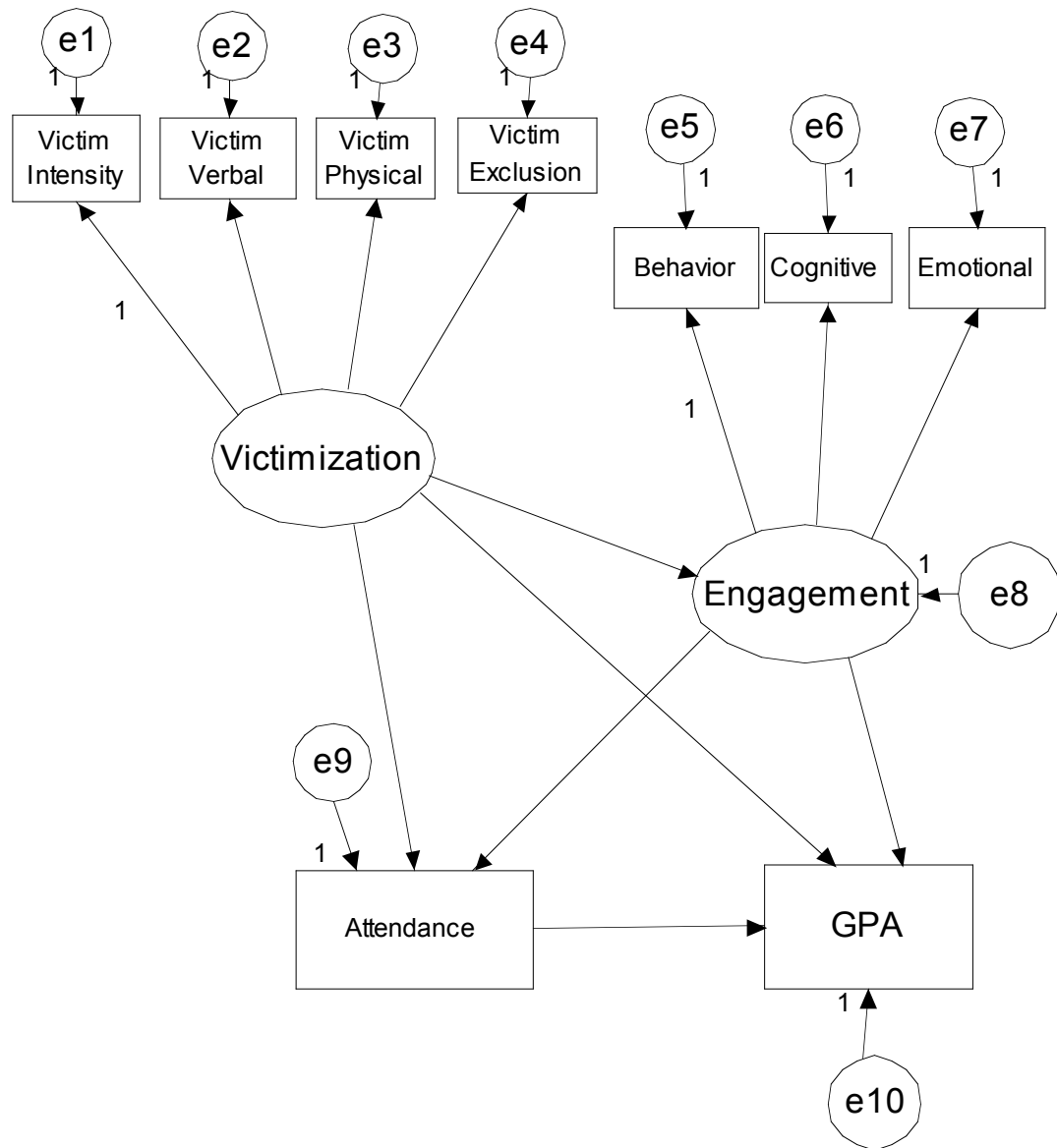


Figure 10. Hypothesized model controlling for fall survey data.

Results for the hypothesized longitudinal model indicated good fit overall. The same fit indices used to evaluate the previous models were employed for this model. A chi-square goodness of fit index, $\chi^2(46, N=860) = 306.645$, $p \leq .001$, statistically significant at the .05 level, indicated a poor fitting model. However, an RMSEA of .057 (using a cutoff criteria of $<.08$) indicted good fit. The root mean square residuals,

(RMR=.0303), also indicated relatively good fit. Lastly, a CFI of .950 (using a criteria of $\geq .95$) indicated good fit for the model. Overall, the fit indices indicated good fit; all fit indices other than chi-square indicated good fit when compared to the generally accepted cut-off criteria.

AMOS provided the fit indices for the overall hypothesized model; however, in multiple group analysis different path coefficients for the fall and spring measures of the data are provided. This allowed comparison of the path coefficients between fall and spring. Not all standardized path coefficients between endogenous and exogenous variables were statistically significant at the $p < .05$ level. Table 36 lists the corresponding coefficients between each pair of significant variables for the fall group.

Table 36.

Standardized Path Coefficients and Associated P-values: Fall Grouping.

Independent	Dependent	Standardized Estimate	P
Victimization	Engagement	-.216	$\leq .001$
Engagement	Attendance	-.087	$\leq .001$
Victimization	Attendance	.039	.319
Victimization	Intensity	.590	
Victimization	Verbal	.810	$\leq .001$
Victimization	Physical	.536	$\leq .001$
Victimization	Exclusion	.782	$\leq .001$
Engagement	Behavior	.581	
Engagement	Cognitive	.903	$\leq .001$
Engagement	Emotional	.823	$\leq .001$
Engagement	Achievement	.199	$\leq .001$
Attendance	Achievement	-.309	$\leq .001$
Victimization	Achievement	-.114	.002

All path coefficients, except that between victimization and attendance, were statistically significant ($p < .05$). The other paths of interest, those between victimization and achievement, victimization and engagement, as well as victimization and attendance were all statistically significant ($p < .05$). As was demonstrated in other sections of this

study, the relationships between victimization and attendance, as well as those between victimization and achievement although statistically significant, were simply not very strong. Figure 11 displays the standardized path coefficients for the fall grouping in the longitudinal model.

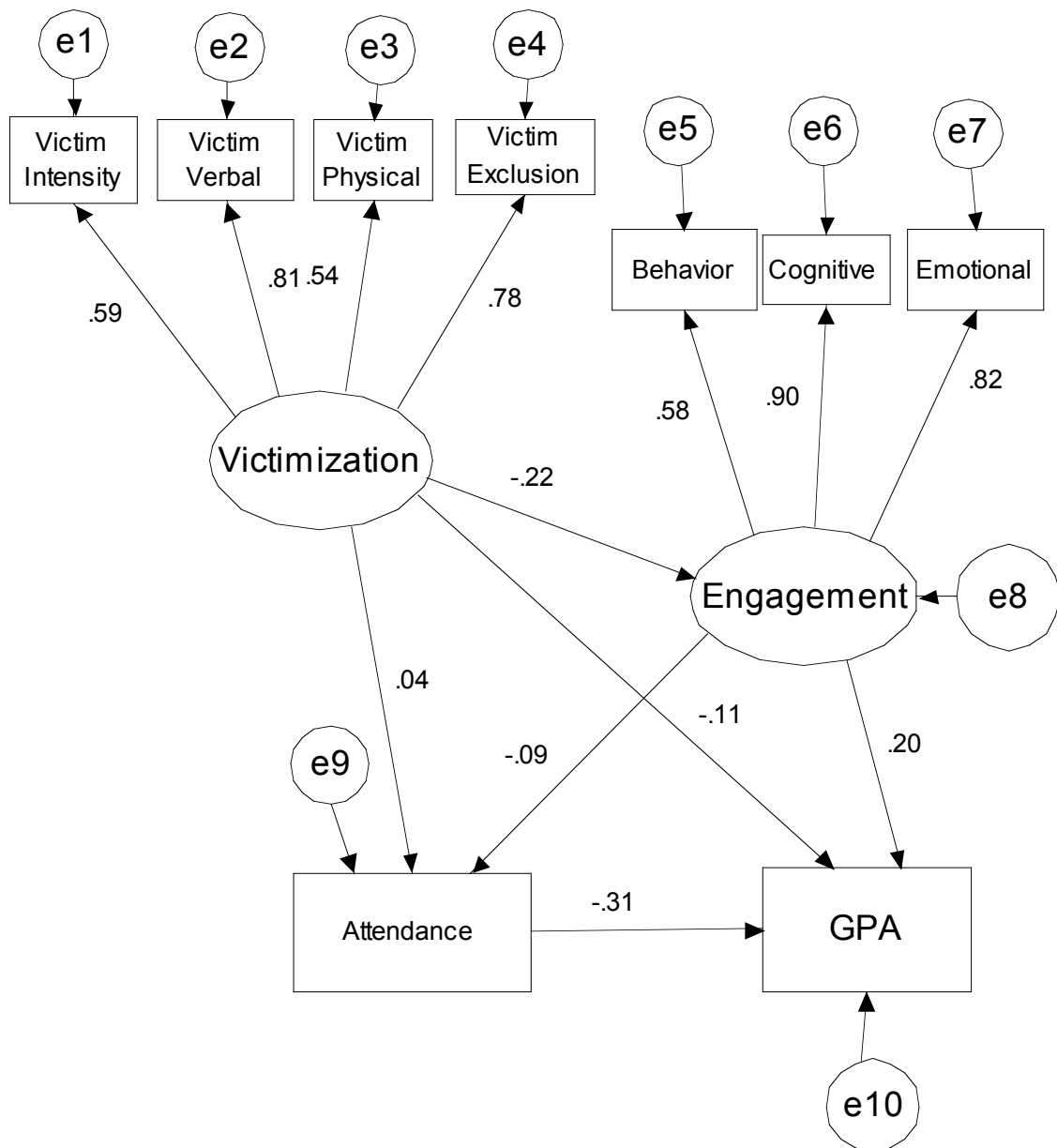


Figure 11. Hypothesized measurement model with standardized path coefficients (Fall group).

The statistically significant coefficient between engagement and achievement suggested that as a student's engagement level went up, so did his/her grade point average. The significant coefficient between attendance and achievement was negative, indicating that as a student's number of missed classes went up, his/her grade point average went down. Similarly, as a student's total peer victimization went up, his/her achievement went down. Although several of the standardized coefficients were statistically different from 0.0, their relatively low standardized values indicated that the relationships were not very strong.

A multiple group analysis provided standardized coefficients for both the fall and spring grouping variables. Table 37 displays the standardized coefficients for the spring grouping, and Figure 12 displays the structural model diagram.

Table 37.

Standardized Path Coefficients and Associated P-values: Spring Grouping.

Independent	Dependent	Standardized Estimate	P
Victimization	Engagement	-.130	.001
Engagement	Attendance	-.129	≤.001
Victimization	Attendance	.026	.479
Victimization	Intensity	.680	
Victimization	Verbal	.853	≤.001
Victimization	Physical	.672	≤.001
Victimization	Exclusion	.807	≤.001
Engagement	Behavior	.665	
Engagement	Cognitive	.911	≤.001
Engagement	Emotional	.841	≤.001
Engagement	Achievement	.341	≤.001
Attendance	Achievement	-.310	≤.001
Victimization	Achievement	-.105	.001

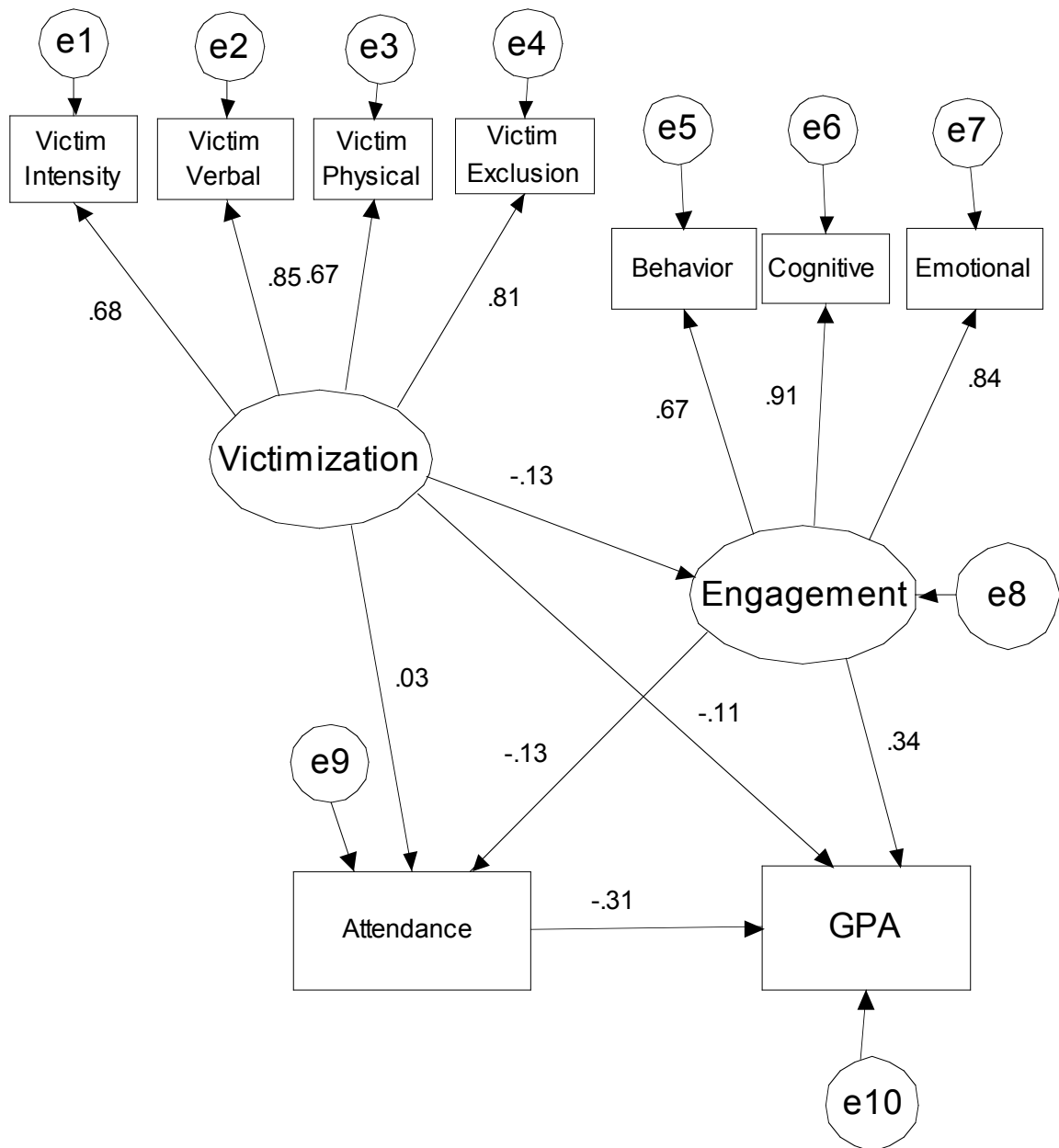


Figure 12. Hypothesized measurement model with standardized path coefficients (Spring group).

The modification indices provided by the AMOS analysis indicated that many paths could be added to increase the fit of the model; however, none of the suggested paths made substantive sense. One should not make decisions about model modification

based on the suggested modification indices alone; the researcher should make adjustments that make substantive sense in relation to the variables. In this case, the suggested paths did not seem reasonable. Removal of the statistically nonsignificant path between victimization and attendance was included as part of the modification of the overall model.

The adjusted model's fit indices indicated slightly better fit than the original *a priori* model that included all hypothesized paths. A chi-square goodness of fit index, $\chi^2(48, N=860) = 308.139, p<.001$, statistically significant at the .05 level, indicated a poor fitting model. However, an RMSEA of .056 (using a cutoff criteria of $<.05$) and CFI of .950 (using a criteria of $>.95$) indicated good model fit as well. In this case, the root mean square residuals, (RMR=.0301), decreased slightly from the previous model, and again suggested good fit. Overall, all of the fit indices indicated a slightly better fitting model with the statistically nonsignificant path removed. Comparing this nested model to its *a priori* version with the parsimony normed fit index (PNFI) demonstrated fit improvement from the original model. The first model (PNFI=.602) had a lower parsimony normed fit index than the nested model with nonsignificant paths removed (PNFI=.628). This fit index indicated model improvement, as PNFI values closer to 1.0 indicate better fit, and adjusted model met the requirement of a PNFI $>.50$, generally accepted as the PNFI index criterion for good model fit. All included standardized path coefficients between endogenous and exogenous variables were statistically significant at the $p<.01$ level. Table 38 shows the coefficients for each path for the fall grouping. Figure 13 displays the adjusted model with standardized path coefficients for the fall grouping.

Table 38.

Standardized Path Coefficients and Associated P-values: Adjusted Model (Fall Group).

Independent	Dependent	Standardized Estimate	P
Victimization	Engagement	-.217	≤.001
Engagement	Attendance	-.096	.009
Victimization	Intensity	.590	
Victimization	Verbal	.809	≤.001
Victimization	Physical	.536	≤.001
Victimization	Exclusion	.783	≤.001
Engagement	Behavior	.581	
Engagement	Cognitive	.903	≤.001
Engagement	Emotional	.823	≤.001
Engagement	Achievement	.199	≤.001
Attendance	Achievement	-.310	≤.001
Victimization	Achievement	-.114	.002

The relatively small, standardized path coefficients echoed the previous findings of this study. Victimization did not have a strong relationship with attendance as was originally hypothesized. The path coefficient between those two variables was statistically nonsignificant. The hypothesized paths between engagement and achievement (standardized coefficient = .199) and attendance and achievement (standardized coefficient = -.310), although statistically significant, were relatively weak. All paths between indicator variables and their latent variable construct counterparts were strong as was expected.

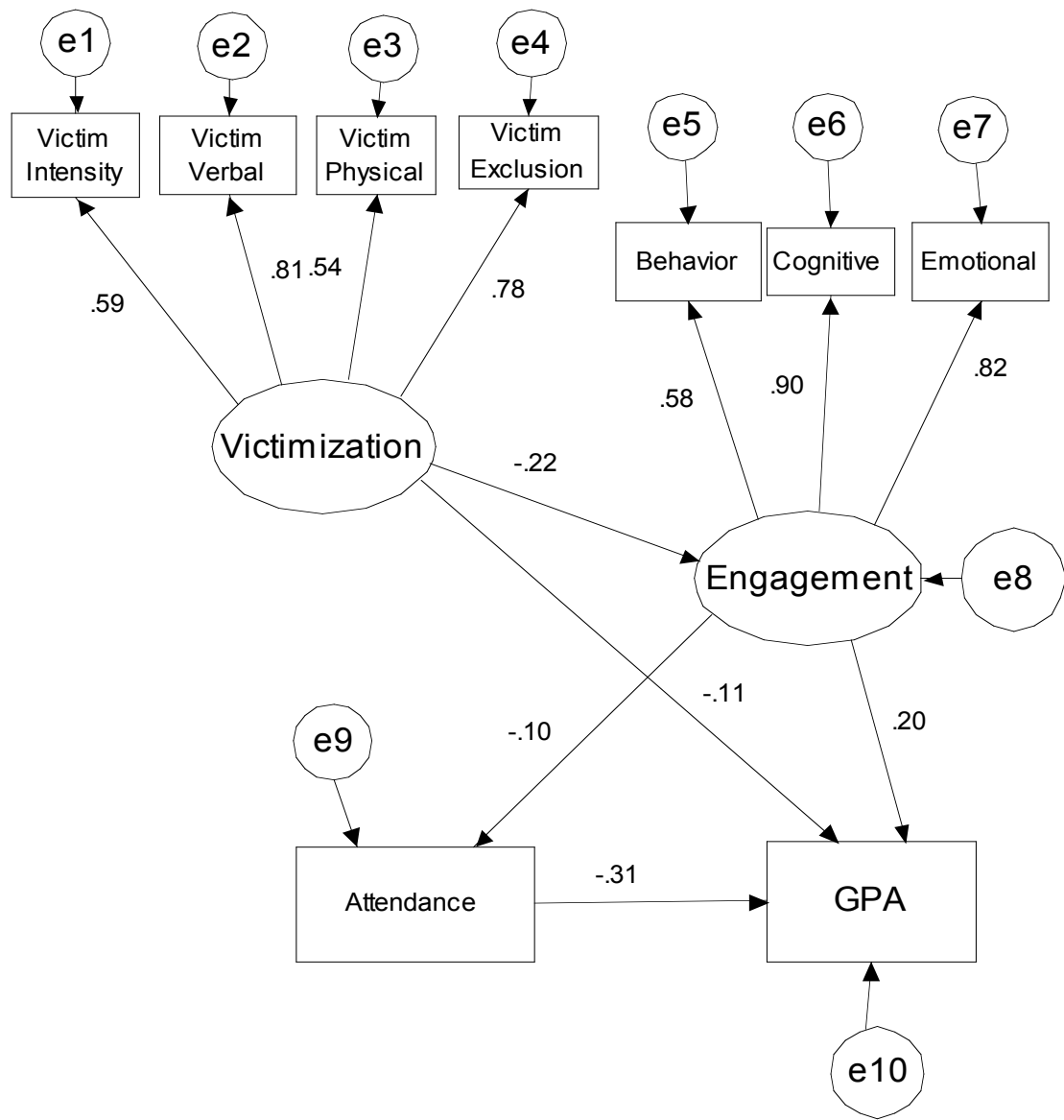


Figure 13. Post Hoc measurement model with standardized coefficients (Fall Group).

Removal of the statistically nonsignificant path between victimization and attendance resulted in slightly better model fit. In addition, the negative coefficients between victimization and engagement as well as victimization and achievement suggested that

engagement did act as a mediating variable between victimization and attendance. Table 39 displays the standardized path coefficients for the adjusted model spring grouping.

Table 39.

Standardized Path Coefficients and Associated P-values: Adjusted Model (Spring Group).

Independent	Dependent	Standardized Estimate	P
Victimization	Engagement	-.130	≤.001
Engagement	Attendance	-.133	≤.001
Victimization	Intensity	.680	
Victimization	Verbal	.853	≤.001
Victimization	Physical	.672	≤.001
Victimization	Exclusion	.807	≤.001
Engagement	Behavior	.665	
Engagement	Cognitive	.910	≤.001
Engagement	Emotional	.842	≤.001
Engagement	Achievement	.341	≤.001
Attendance	Achievement	-.311	≤.001
Victimization	Achievement	-.105	≤.001

The path coefficient between victimization and engagement for the spring group decreased from the fall group from -.217 to -.130 suggesting victimization had less impact on engagement in the spring. However, the path coefficient between engagement and achievement increased in the spring group from .199 to .341 suggesting a stronger relationship between engagement and achievement in the spring. Victimization still had a negative impact on engagement, and attendance was negatively related with engagement. As would be expected, more absences had a negative relationship with achievement suggesting the more classes a student misses, the less he/she achieves in school. Figure 14 displays the path diagram for the spring grouping.

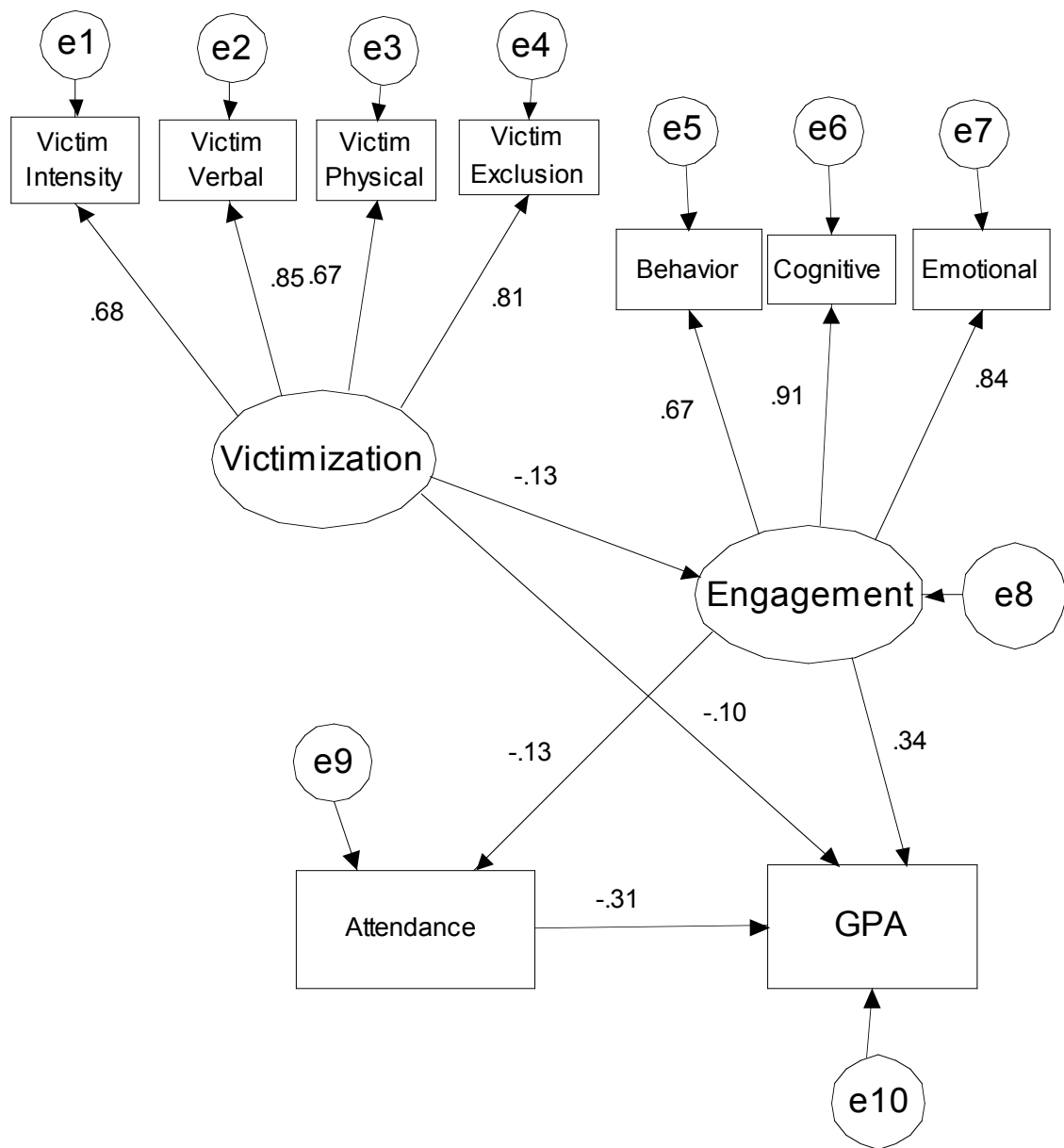


Figure 14. Post Hoc measurement model with standardized path coefficients (Spring Group).

The *a priori* model fit indices demonstrated good model fit, and the adjusted model showed slight improvement to model fit; Table 41 displays the fit indices of both models compared.

Table 40.

Fit Indices for Structural Model 1 and Adjusted Structural Model 1 (n=860).

<i>Fit Index</i>	<i>Hypothesized Model</i>	<i>Adjusted Model</i>
X^2	306.645	308.139
<i>df</i>	46	48
<i>CFI</i>	.950	.850
<i>RMR</i>	.0303	.0301
<i>RMSEA</i>	.057 [.051, .064]	.056 [.050, .062]
<i>PNFI</i>	.602	.628

In summary, the hypothesized multiple group model fit was good; however, with the removal of the nonsignificant path, the resulting nested model had slightly improved fit according to the PNFI fit index. The weak path coefficients between the predictor variables of attendance and engagement and the dependent variable of achievement implied that the hypothesized relationships were present but not strong.

Of the three structural models, a model, in which the fall variables were included as control, resulted in the best fitting model. However, building a model with only the spring data resulted in the good fitting model as well. Fit indices verified the latent construct of the peer victimization and school engagement variables, and path coefficients indicated relationships between peer victimization, school engagement, and student attendance were statistically significant, but not strong.

CHAPTER IV

Discussion

Summary of Study

Put simply, there were not strong statistical relationships between any of the predictor variables included in this study (victimization frequencies by subtype and victimization intensity) and absenteeism. The goal of the study was to explore the nature of the specific relationship between victimization and absenteeism, and all three statistical analyses used (correlation, regression, and structural equation models) confirmed that the relationship between the two variables was either nonsignificant, as in the case of the correlational and regression analyses, or statistically significant, but still weak, as in the case of the structural equation models.

This study was designed to assess the role of victimization frequency and intensity in determining how much school a student misses. The study examined 13 research questions concerning the impact of peer victimization upon attendance. Although prior research suggests that students' victimization behaviors do have a significant impact on attendance (Banks, 1997; Fried & Fried, 1996; Garrity et al., 1997; Hoover & Oliver, 1996), the findings from this study suggest that these relationships are weak, at least for the 6th grade student sample used for data analysis.

The structural models confirmed that school engagement might well be acting as a mediating variable between peer victimization and attendance. All analyses demonstrated

significant relationships between peer victimization and engagement as well as between engagement and attendance. The structural equation models confirmed that peer victimization does ultimately lead to decreases in student achievement.

Perhaps the differences between the findings of this study and other studies on the same topic are due to the age of the included students. This particular study involved only sixth-grade students, while many other studies that found that absenteeism has a significant relationship with peer victimization included older students (Banks, 1997; Fried & Fried, 1996; Garrity et al., 1997). After the relationship between victimization and attendance was determined to be weak, it was considered that students older than 6th grade have more opportunity to miss school; 6th graders, for the most part, are taken to school by parents, so they have less control over their own attendance. Victimized students who want to miss school might simply not have a choice to be absent. The Buhs, Ladd, and Herald study (2006) utilized a latent construct for student absenteeism in which students were asked whether they would choose to miss school because of their victimization levels, and upon reflection this may be a better way to represent school avoidance for young children.

Major Findings

Descriptive Research Questions

The first three research questions were developed to allow for basic data exploration. In essence, an overall feel for the different variables was the goal of the first three questions. The following questions were used to guide data exploration:

(1) What frequencies of peer victimization behaviors do 6th grade students experience as middle school students?

(2) What intensity of peer victimization behaviors do 6th grade students experience as middle school students?

(3) What are the levels of school engagement for 6th grade students in middle school?

From the initial data analysis, it became clear that some of the students included in the study were feeling frequently victimized by their peers. However, most students indicated very little victimization overall. The intensity variable indicated that few students felt great intensity of victimization. Only a few of the intensity items had substantial “yes” responses, and the average “yes” total for students did not indicate that many students were intensely victimized. Perhaps most conclusive for this study, was the extremely low percentage of students who indicated that miss school because of their perceived victimization levels. As would be expected for 6th grade students, most indicated they were very engaged while at school. School seemed to be a fun place for them, and most enjoyed their peers, teachers, and the school environment.

Correlation Questions

The next several research questions were included to establish relationships between the different variables of interest included in the different analyses. Questions about how victimization levels and absenteeism are significantly related resulted in the following:

(4) What are the relationships between frequency of each of the three types of self-reported peer victimization in schools and absenteeism?

(5) What is the relationship between intensity of self-reported peer victimization in schools and absenteeism rate?

(6) What are the relationships between levels of each of the three types of self-reported school engagement in schools and absenteeism?

(7) What are the relationships between frequencies of each of the three types of self-reported peer victimization and the levels of each of the three types of self-reported school engagement?

Each of the questions was answered by examining the correlation coefficients between the various pairs of variables. Interestingly, none of the victimization variables were correlated with the absenteeism variable. The victimization variables were, however, significantly correlated with each other. It seems reasonable that students who face one type of victimization are more likely to face another type.

The engagement variables were significantly correlated with the absenteeism variable; however, interpretation of the relationships between the variables should be made cautiously because although statistically significant, they were all weak coefficients. Negative coefficients were expected, as it seems reasonable that as a student's engagement goes up, the number of classes he/she misses goes down. The weak correlations between the variables of interest made it obvious that the regression analyses would not provide strong models.

The most interesting correlation coefficients came between the pairs of engagement variables and the victimization variables. The coefficients between the behavioral and emotional engagement types and all victimization variables were statistically significant. As one might predict, the coefficients were negative, indicating that as the frequencies of victimization for a student go up, his/her behavioral and emotional engagement go down. Interestingly, the cognitive engagement type was not

significantly correlated with victimization levels. This makes substantive sense; victimization, theoretically, should hurt a student's behavioral and emotional engagement, but wouldn't affect his/her cognitive abilities in the short term. This portion of the correlational analyses affirmed the hypothesis that peer victimization effects on attendance rates could be mediated through student engagement. No direct link between victimization and attendance was found in the correlation coefficients, but a clear relationship between peer victimization and student engagement existed.

Regression Questions

The multiple regression analyses were included in this study as the precursor to the structural equation models. The weak correlations between the variables hinted that the regression models would not find statistically significant coefficients between the predictor variables and the dependent variable of absenteeism. The following research questions guided the regression portion of the study:

- (8) Does the frequency of victimization (by victimization type) and victimization intensity for affected youths predict their subsequent absenteeism?
- (9) Do the levels of each of the three types of self-reported school engagement behaviors predict subsequent absenteeism?
- (10) Does the frequency of victimization (by victimization type) and victimization intensity for affected youths predict total school engagement?

Although the different models had various statistically significant slope coefficients, all three had small coefficients of determination. These weak R^2 values indicated that very little of the variability of the dependent variable was explained by the predictor variables. Even with significant slope coefficients, the researcher was hesitant

to interpret the regression models. The previous correlation coefficients indicated that regression models would prove inadequate for prediction purposes.

Structural Model Questions

The structural equation portion of this study was modeled after another study in which a linear combination of student victimization, engagement, attendance, and achievement was assessed (Buhs, Ladd & Herald, 2006). However, it was hypothesized that different treatment of the variables might result in a fitting model that would help explain the relationships among these variables. The peer victimization and school engagement variables were treated as multi-faceted constructs, achievement was actual grade point average, and school avoidance was measured as real attendance rate. The following questions guided the model specification for the structural equation portion of the study:

(11) Does treatment of the peer victimization and school engagement variables as latent constructs rather than direct measurements serve to provide a measurement model with adequate fit?

(12) Does treatment of peer victimization, student engagement, attendance, and achievement variables different from the study by Buhs, Ladd and Herald (2006) serve to provide a measurement model with adequate fit?

(13) Does a structural equation model controlling for the fall survey data, with the same latent treatment of the peer victimization and school engagement variables, demonstrate good model fit?

The three distinct models were an attempt to explore the problem from three different perspectives. The strong path coefficients from the latent constructs of peer

victimization and school engagement and the indicators for those variables suggested that the survey was measuring the constructs intended. Treating peer victimization and school engagement as latent constructs was appropriate based upon the measurement model results. Fit indices indicated good fit, and statistically significant paths demonstrated sound latent structures.

The hypothesized structural equation model, with paths between the latent variables of peer victimization and school engagement as well as attendance and achievement, provided good fit. Although the model fit was good, weak path coefficients repeated the findings from the correlation and regression portions of the study. The strengths of the relationships between victimization, engagement, and attendance were plainly not what was hypothesized.

The last structural model controlled for the fall data. Model fit was good suggesting that a multiple group analysis with the repeated measures nature of the data represented was appropriate. Strong fit indices and statistically significant path coefficients between endogenous and exogenous variables for the rest of the model imply repeated measures treatment of the victimization and engagement variables provided a better model than that proposed by Buhs, Ladd, and Herald. The one statistically nonsignificant path, (that between peer victimization and attendance), echoed the findings from the rest of the study portions. However, the models did provide evidence that the effects of peer victimization on attendance were perhaps mediated by engagement.

Summary of Conclusions

This study provided evidence that peer victimization and attendance did not have a significant relationship for 6th grade students. Each different portion of the study was

designed to examine the relationship between victimization and attendance, and each had similar results. Either weak path coefficients, or statistically nonsignificant relationships between victimization and attendance were found throughout the analyses.

However, the structural equation models did reveal interesting relationships between the variables included. As would be expected, students missing more school, achieve less in school. Clearly, peer victimization had a negative relationship with school engagement, so the more a student was victimized, the less he/she was engaged at school. In addition, school engagement had a significant negative relationship with attendance, so ultimately, one can make the argument that peer victimization leads to decline in achievement either directly or indirectly through the mediating variable of school engagement.

Implications

The implications for this research study are not profound regarding direct relationships between peer victimization and attendance. The hypothesis that peer victimization and attendance are intimately related was not supported. However, the structural equation models supported the hypothesis that school engagement mediates the effects of peer victimization on attendance and ultimately achievement. In addition, the results were limited to 6th grade students, and as was previously discussed, perhaps, models similar to those included in this study but with older students included in the sample would have provided stronger relationships between peer victimization and attendance.

The statistically significant relationships between peer victimization and school engagement suggested that students are impacted negatively by peer victimization.

School engagement was predictive of achievement, so if students' engagement levels are decreasing because of peer victimization, then logically, their achievement decline is related to their peer victimization as well. This research could be used to support school-level programs designed to decrease peer victimization as direct interventions to increase school engagement which will in turn increase student attendance and achievement.

Limitations

Survey Issues: As the data were being analyzed prior to any model specification, a concern about the survey became apparent. The peer victimization items were listed for response by the students as "Never," "1 or 2 times," "3 or 4 times," "5 or 6 times," and "7 or more" in the last 30 days. When determining a cutoff for a student to qualify as a "victim," in previous studies, more than one peer victimization incident is considered the criterion to determine a victim. The survey design led to some ambiguity as to which students should be defined as victims for this particular study. A response of "1 or 2 times" could indicate both a victim and non-victim by the traditionally accepted definition of "victim." Upon reflection, a redesign of the survey would allow respecification of the item responses, so that one category does not indicate two different possible classifications. This would assist in interpretation of the item mean and would allow for the creation of a categorical variable that identifies a student as a victim or not for other interesting statistical analyses.

Variable Treatment: Part of the skepticism towards the Buhs, Ladd, and Herald model was their treatment of the "School Avoidance" variables. In essence, they asked students if they would choose to miss school because of their peer victimization experiences. It seemed probable that many students would respond positively to that

prompt despite their victimization levels; most students would like to miss school if asked. Actual attendance appeared to measure the construct of school avoidance more accurately. Prior to the analyses for this study, it was hypothesized that attendance would be a better measure for “school avoidance,” but after analysis and recognition of the skewed nature of the attendance data, a different view of attendance for 6th grade students emerged. Sixth-grade students are generally too young to skip school. Generally, younger children are still under strong guidance from their parents. Often, parents are in charge of getting younger children to school, so the opportunity for the student to skip diminishes. The objective treatment of an attendance measure in this study may have led to the finding that victimization and attendance are not significantly related. An actual attendance measure might be better for older students, especially those who have responsibility for getting themselves to school.

Data Missingness: Listwise deletion was used as the method of dealing with data missingness. It was determined that data imputation for this particular study would result in strong bias, as students with data missingness generally were missing 50% of their possible survey responses. Data imputation can be a powerful method for dealing with missing data, but only when a small percentage of the data are being imputed. However, in this study, listwise deletion eliminated over 300 student cases, a significant loss of power. In hindsight, it would have been advised to attempt to get to those students who missed the spring survey for another administration attempt. Most limiting to listwise deletion of missing data was that students who missed the spring survey missed because they were absent; perhaps, many of the students who would have provided interesting data regarding absenteeism were left out because they were, in fact, absent themselves.

Recommendations for Further Study

A suggestion for further research would be to identify those students who indicated substantial victimization and get direct information about their absence rates via interview or survey. The researcher believes that much of the relationship between victimization and attendance was lost in these analyses because many students were missing school for other reasons. By including all cases, because the victimized students were so limited in number, their effects tended to be diminished. In other words, the moderate variability for the attendance variable was attributed to many other variables not included in the analyses. If only those students with high victimization levels were included in the analyses, the relationships between victimization and attendance may be easier to model. More information about the relationships between peer victimization and other variables may emerge if only those who had significant victimization were included in the analyses. Rather than include all of the student data, it would be reasonable to identify students as victims or not, and then begin to look at differences between/among the groups. It may be easier too. Simple t-tests between groups identified as victims and others identified as not would provide information regarding victimization and absenteeism. The data representing the minority of students who were victims may have been lost in the analyses because of the larger number of students who were not identified as victims but still missed considerable amounts of school.

Another observation during the various analyses for this study was that the engagement variable might not be capturing exactly what was intended. The hypothesis driving the models was that peer victimization should lower school engagement, which in turn might lead to lower attendance and possibly lower achievement. In looking at the

items measuring engagement more closely, it became apparent that the items are measuring constructs about how a student behaves in school as well as some of the innate cognitive skills a student might have that supports academic success. With reflection, however, it seems that a better hypothesis would be that peer victimization has significant effects on attitude or a self-esteem construct, and in turn, changes in attitude and/or self-esteem can impact attendance and achievement. It is recommended by the researcher to try using an attitude or self-esteem variable as opposed to a school engagement construct.

Although the data for this study were repeated measures, to see the real impact that peer victimization has on attendance it would be better to have a longer period of time between surveys, and perhaps more survey administrations so the data are truly longitudinal in nature. It is possible that the effects of peer victimization take longer than just a few months to significantly impact a student's attendance or engagement levels. A better study, albeit more difficult, would be to monitor students classified as victims over longer periods of time to determine if there is a downward trend in attendance or engagement. This would take into account the possibility that peer victimization impacts take effect over long periods of time as suggested by the research in the area. However, the ethicality of a study in which victims are identified and no interventions are employed is questionable.

Throughout this study, ideas for other studies with this particular dataset became apparent. It would be interesting to examine gender differences for the variables of interest. Equally, one could explore the differences found between the various ethnicities and at-risk populations. In addition, the repeated measures nature of the data could allow for the examination of differences in peer victimization, school engagement, attendance,

and achievement over the two different time points. Determining the significance of differences between fall and spring victimization levels would be an interesting topic for another study. An analysis of the significance of the differences across the fall and spring survey for the other included variables is warranted as well. Another comparison for responses to the victimization items, (or any of the other variables for that matter) deserving further analysis would be to look at gender, ethnicity, or at-risk status differences over time. It would be fascinating to study whether certain student characteristics like gender or ethnicity mediate the effects of peer victimization on variables like attendance, engagement, and/or achievement.

Another possibility for study would be to create categories of peer victimization based on the data and use logistic regression models to determine the significance of the other variables in predicting students in those categories. For instance, one could create a variable with “fall victim,” “spring victim,” “both victim,” and “neither victim” categories and determine if attendance rates or engagement significantly predict placement of students in those categories. This might be a better way of dealing with the repeated measures nature of the data. However, this would necessitate a more specific method for categorizing students as victims, and as mentioned previously, the survey questions as scored leave some ambiguity to the victimization variable.

Reflections

As the data analyses for the study were being done, it became clear that preliminary data analysis prior to the establishment of the research questions and hypotheses would have been advisable. When the correlation coefficients between the proposed independent variables and the dependent variable of attendance were found not

to be statistically significant, some of the other proposed statistical analyses became obsolete, as all three analyses were basically looking for the same non-existent linear relationships between the variables of interest.

The first major change in the research questions that would result from knowing that few significant correlation coefficients exist between the independent variables and attendance would be to not use multiple regressions to determine the predictive strength of the various variables. Weak correlations suggest regression equations will be nonsignificant. For the most part, the victimization variables were not predictive of attendance. Similarly, the engagement construct was not significantly predictive of attendance. In addition, the victimization variables were not significantly predictive of school engagement.

In addition, it became clear that the longitudinal nature of the data was not being utilized to its potential. It seems obvious now that determining the presence of statistical differences between the fall and spring survey would be worthy of investigation, but hypotheses that would drive these analyses were not included in this study. Throughout the data analysis, other analyses worthy of exploration became apparent, such as analysis of differences across time, as well as analysis of differences between gender, or differences among ethnicities and at-risk statuses.

A final reflection for this project speaks to the difficulty of statistical modeling in general. All of the models used in this study made sense to the researcher and worked well for problems posed for classroom exercises; however, in real practice, when the many different problems arose all at the same time (issues like data missingness, variable distributions, hypothesizing substantive models), statistical modeling became a whole

new challenge. The lesson learned was that real studies are never as clean as those found in classrooms for learning exercises, and the challenge was vast.

Final Summary

In summary, a repeated measures dataset examining the relationships between peer victimization and attendance has potential for interesting analyses; the research questions posed for this particular study, however, did not access that potential, nor do the results lead to any great benefit to this area of research. The most significant outcome was finding significant relationships between victimization and engagement, as well as engagement and achievement, which in effect suggested working to lower peer victimization could eventually enhance achievement. In addition, the strongest relationship found was that between school engagement and achievement, so interventions designed to improve student engagement might be the best method for increasing student learning.

Addressing the previously suggested recommendations could possibly enhance the usefulness of this study to support positive change in our schools. A similar study with older students, or perhaps a longitudinal view of victimized students over a longer period of time with more data points would provide more interesting results. In hindsight, questions regarding differences between groups may have been more interesting to address.

Frankly, it is possible that high profile events, such as the Columbine shootings, have led to increased attention to peer victimization in schools, and the nonsignificant relationships found between the victimization variables and attendance are a product of this new sensitivity. Schools have changed drastically over the last ten years; a new focus

on student safety and anti-bullying campaigns has emerged. Schools have new procedures around security; most schools have adopted “no tolerance” policies around peer victimization. Teachers and school staff have become more sensitive to bullying behaviors, and intervention may be coming more readily for victimized students. It is quite possible that students are simply not victimized at levels that would cause significantly negative effects on attendance and achievement. Also, victims may be feeling more supported by teachers and school staff, and subsequently, their behaviors and attitudes toward school are not significantly changed when peer victimization behaviors are faced.

REFERENCES

- Allison, P. D. (2001). *Missing Data*. Thousand Oaks, CA: Sage Publications.
- Baker, M. L., Sigmon, J. N., & Nugent, M. E. (2001). *Truancy reduction: Keeping students in school*. Washington, DC: U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention.
- Banks, R. (1997). Bullying in schools. *ERIC Review*, 7(1), 12-14. Retrieved July 16, 2008, from <http://www.ericdigests.org/1997-4/bullying.htm>.
- Batsche, G. M., & Knoff, H. M. (1994). Bullies and their victims: Understanding a pervasive problem in schools. *School Psychology Review*, 23(2), 165-174.
- Beran, T. N. (2009). Correlates of peer victimization and achievement: An exploratory model. *Psychology of Schools*, 46(4), 348-361.
- Boulton, M. J., Trueman, M., & Murray, L. (2008). Associations between peer victimization, fear of future victimization and disrupted concentration on class work among junior school pupils. *British Journal of Educational Psychology*, 78(3), 473-489.
- Buhs, E. S. & Ladd, G. W. (2001). Peer rejection as an antecedent of young children's school adjustment: An examination of mediation processes. *Developmental Psychology* 37(4), 550-560.

- Buhs, E. S., Ladd, G. W., & Herald, S. L. (2006). Peer exclusion and victimization: Processes that mediate the relation between peer rejection and children's classroom engagement and achievement? *Journal of Educational Psychology*, 98(1), 1-13.
- Byrne B. J. (1994). Bullies and victims in a school setting with reference to some Dublin schools. *Irish Journal of Psychology*, 15, 574-586.
- Clump, M. A., Bauer, H., & Whiteleather, A. (2003). To attend or not to attend: Is that a good question? *Journal of Instructional Psychology*, 30, 220-224.
- Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development*, 66, 710-722.
- Colorado Department of Education. (CDE) (2008). What is adequate yearly progress? Retrieved June 24, 2008, from <http://www.cde.state.co.us/ayp>.
- Colorado Foundation for Families and Children. (2002). *Youth out of school: Linking absence to delinquency*. Denver, CO: Author. Retrieved January 9, 2009, from http://www.pffac.org/file.php/181/Youth+out+of+school_DonnerReport2.pdf.
- Espelage, D. L., & Holt, M. L. (2001). Bullying and victimization during early adolescence: Peer influences and psychosocial correlates. *Journal of Emotional Abuse*, 2(3), 123-142.
- Espelage, D.L., & Swearer, S. M. (2003). Research on school bullying and victimization: what have we learned and where do we go from here? *School Psychology Review*, 32(3), 365-383.

- Finlay, K. A. (in press). *School engagement survey*. National Center for School Engagement.
- Finn, J. D. (1993). School engagement and students at risk. *National Center for Education Statistics*. U.S. Department of Education.
- Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, 74(1), 59-109.
- Fried, S., & Fried, P. (1996). *Bullies & victims: Helping your child survive the schoolyard battlefield*. New York, NY: M. Evans.
- Garrity, C., Jens, K., Porter, W.W., Sager, N., & Short-Camilli, C. (1997). Bullyproofing your school: Creating a positive climate. *Intervention in School and Clinic*, 32(4), 235-243.
- Garry, E. (1996). *Truancy: First Step to a Lifetime of Problems*. Washington, D.C.: Office of Juvenile Justice and Delinquency Prevention, U. S. Department of Justice.
- Garson, G. D. (2009). Structural equation modeling. *Statnotes: Topics in multivariate analysis*. Retrieved April 1, 2009 from <http://faculty.chass.ncsu.edu/garson/PA765/structur.htm#repeated>.
- Glew, G. M., Fan, M., Katon, W., Rivara, F. P., Kernic, M. A. (2005) Bullying, psychosocial adjustment, and academic performance in elementary school. *Archives of Pediatrics and Adolescent Medicine*, 159(11), 1026-1031.

- Gay Lesbian Straight Education Network (GLSEN). (2005). *From Teasing to Torment: School Climate in America*, Harris Interactive. Retrieved August 8, 2008, from <http://www.glsen.org/cgi-bin/iowa/all/news/record/1859.html>.
- Heilbrunn, J. (2008). Blueprints programs that promote school engagement. *National Center for School Engagement*.
- Hoover, J., & Oliver, R. (1996). *The bullying prevention handbook: A guide for principals, teachers, and counselors*. Bloomington, IN: National Educational Service.
- Hoyle, R. H. (ed.) 1995. *Structural Equation Modeling*. Thousand Oaks, CA: SAGE Publications, Inc.
- Johnston, D., & Lewis, G. (1999). Do you like what you see? Self-perceptions of adolescent bullies. *British Educational Research*, 25(5), 665-667.
- Jöreskog, K., & Sörbom, D. (1993). *LISREL 8: Structural equation modeling with the SIMPLIS command language*. Chicago, IL: Scientific Software International.
- Kann L, Warren C. W., Harris W. A., et al. (1995). *Youth Risk Behavior Surveillance*. Centers for Disease Control. Retrieved August 10, 2008, from <http://www.cdc.gov/mmwr/preview/mmwrhtml/00043812.htm>.
- Kelloway, E. K. (1998). *Using LISREL for structural equation modeling: A researcher's guide*. Thousand Oaks, CA: Sage Publications, Inc.
- Kline, R. B. (1998). *Principles and practice of structural equation modeling* (1st ed.). New York: Guilford Press.

- Koki, S. (1999). *Bullying in schools should not be par for the course*. Pacific Resources for Education and Learning. Washington D.C.: Office of Educational Research and Improvement.
- Lamdin, D. J. (1996). Evidence of student attendance as an independent variable in education production functions. *The Journal of Educational Research*, 89, 155-162. Retrieved on June 22, 2008 from ERIC.
- Mogulescu, S., & Segal, H. J. (2002). *Approaches to truancy prevention*. Youth Justice Program: Vera Institute of Justice.
- Myers, S. L., Jr. (2000). Racial disparities in Minnesota basic standards test scores, 1996-2000. Technical report from the Roy Wilkins Center for Human Relations and Social Justice, Hubert H. Humphrey Institute of Public Affairs. Minneapolis: University of Minnesota.
- Nansel, T., Overpeck, M., Pilla, R., Ruan, W., Simons-Morton, B., & Scheidt, P. (2001). Bullying behaviors among US youth. *Journal of the American Medical Association*, 285, 2094-2100.
- National Resource Center for Safe Schools. (1999). Recognizing and preventing bullying (Fact sheet no. 4). Portland, OR: Northwest Regional Educational Laboratory. Retrieved July 16, 2008, from http://www.ncesd.org/safe_civil/docs/resources/factsheet_recognizeprevent_bullying.pdf.

- National Safe Schools Partnership. (2007) Bridging the gap in federal law: Promoting safe schools and improved student achievement by preventing bullying and harassment in our schools. Retrieved June 8, 2008, from <http://www.counseling.org/Files/FD.ashx?guid=3f77a527-7928-4d6c-aecd-00a70cfec8ed>.
- O'Connell, P., Pepler, D., & Craig, W. (1999). Peer involvement in bullying: insights and challenges for intervention. *Journal of Adolescence* 22(4), 437-452.
- Olweus, D. (1993). *Bullying at School: What we know and can do*. Malden, MA: Blackwell Publishing.
- O'Moore, M., & Kirkham, C. (2001). Self-esteem and its relationship to bullying behaviour. *Aggressive Behaviour*, 27, 269-283.
- Pallant, J. (2005). *SPSS survival manual: a step by step guide to data analysis using SPSS*. New York: Open University Press.
- Paul, J. J., & Cillessen A. H. (2003). Dynamics of peer victimization in early adolescence: Results from a four-year longitudinal study. *Journal of Applied School Psychology*, 19(2), 25-43.
- Raykov, T. & Marcoulides, G. A. (2006). *A first course in structural equation modeling*. (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Rigby, K. (1996a). *Bullying in schools: And what to do about it*. Bristol, PA: Jessica Kingsley Publishers.
- Rigby K. (1996b). Does bullying really do children any harm? *Schools of Education at the University of South Australia*. Retrieved June 19, 2008, from <http://www.education.unisa.edu.au/bullying/harm.html>.

- Sattler, J. M. (2001). *Assessment of Children: Cognitive Applications*, 4th ed. San Diego, CA: Jerome M. Sattler, Publisher Inc.
- Schwartz, D., Dodge, K. A., Pettit, G. S. & Bates, J. E. (1997). The early socialization of aggressive victims of bullying. *Child Development*, 68, 665-675.
- Sharp, S. (1995). How much does bullying hurt? *Educational and Child Psychology*, 12(2), 81-88.
- Shernoff, D. J., & Schmidt, J. A. (2008). Further evidence of an engagement-achievement paradox among U.S. high school students. *Journal of Youth and Adolescence*, 37, 564-580.
- Tabachnick, B., & Fidell, L. (2001). *Using Multivariate Statistics*, 4th ed. Boston, MA: Allyn and Bacon.
- Theriot, M. T., Dulmus, C. N., Sowers, K. M., Johnson, T. K. (2005). Factors relating to self-identification among bullying victims. *Children and Youth Services Review*, 27(9), 979-994.
- U.S. Department of Education. (2003). The Elementary and Secondary Education Act as reauthorized by the No Child Left Behind Act of 2001. Retrieved May 26, 2008, from <http://www.ed.gov/policy/elsec/leg/esea02/index.html>.
- U.S. Department of Education Office of Safe and Drug-Free Schools. (2003). *Bullying Prevention in the School: Research-Based Strategies for Educators*. 11 The Challenge No. 3.

- U.S. Department of Health and Human Services, Substance Abuse & Mental Health Service Administration (2007). *Exploring the nature and prevention of bullying: educational campaigns*. Retrieved December 18, 2008, from:
http://www.ed.gov/admins/lead/safety/training/bullying/bullying_pg17.htm
- U.S. Department of Justice. (2002). Bullying in schools. *Problem-Oriented Guides for Police series*.
- Whitney, I., & Smith, P. K. (1993). A survey of the nature and extent of bullying in junior/middle and secondary schools. *Educational Research*, 35(1), 3-25.
- Xiao, J. (2007). *Bully in schools*. Georgia State University Center for School Safety, School Climate and Classroom Management. Retrieved July 7, 2008, from
<http://education.gsu.edu/schoolsafety>.

Appendix A

Cover Letter/Adolescent Assent Form

Adolescent Assent: I have been told about the purpose of the Bullying-Truancy Connection Study. I understand that if I agree to be part of this study, I will be asked in the fall 2007 and in the spring 2008 to fill out a questionnaire about my experiences with bullying, and about how much I like and am involved in school. I understand that I can skip questions or parts of the questionnaire, or decide not to fill it out at all, without penalty.

I understand that my answers will be kept private. I understand that if I reveal information about child abuse or neglect, murder, or wanting to harm or kill myself, the researchers cannot keep this information private and must inform the appropriate persons.

Signature

Date

ID #

Appendix B

Victimization/Engagement Survey Instrument



Student ID Number: _____

Date completed: _____

School: _____

Age: _____ Grade: _____ Boy or Girl (circle one)

We would like to find out a little more about how you feel about school and some things that happen to you in school. Your answers to the following questions will help us to do this. It will take you about 15 minutes to complete this survey. If you are unsure of how to answer a question, please answer it as best you can and then write a comment in the margin. All the information you provide is confidential. It will only be used to help us learn about how to keep children interested in completing school.

1. Your ethnicity (please check all that apply): ☐ White/Anglo ☐ African American
☐ Hispanic/Latino ☐ American Indian ☐ Asian/Pacific Islander
☐ Other, describe _____

2. Your primary language: _____ Second language: _____

How much do you agree with each of the following statements?	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
3. I come to class prepared.	①	②	③	④	⑤
4. I treat my classmates with respect.	①	②	③	④	⑤
5. I complete my work on time.	①	②	③	④	⑤
6. I treat my teachers with respect.	①	②	③	④	⑤
7. I follow the rules at school.	①	②	③	④	⑤

How often are the following statements true for you?	Never/Almost Never	Rarely	Sometimes	Often	Always/Almost Always
8. I feel excited by the work in school.	①	②	③	④	⑤
9. I am interested in the work I get to do in my classes.	①	②	③	④	⑤
10. I talk with people outside of school about what I am learning.	①	②	③	④	⑤
11. I check my schoolwork for mistakes.	①	②	③	④	⑤
12. I learn a lot from my classes.	①	②	③	④	⑤

How often are the following statements true for you?	Never/ Almost Never	Rarely	Sometimes	Often	Always/ Almost Always
13. I enjoy the work I do in class.	①	②	③	④	⑤
14. I feel I can go to my teachers with the things that I need to talk about.	①	②	③	④	⑤
15. My classroom is a fun place to be.	①	②	③	④	⑤
16. Most of my teachers praise me when I work hard.	①	②	③	④	⑤
17. Most of my teachers understand me.	①	②	③	④	⑤

For each of the statements below (questions 18-24), choose how many times these things have happened to you in the LAST 30 DAYS (check one for each question):

18. Other students picked on me.

___ Never ___ 1 or 2 times ___ 3 or 4 times ___ 5 or 6 times ___ 7 or more

19. Other students made fun of me.

___ Never ___ 1 or 2 times ___ 3 or 4 times ___ 5 or 6 times ___ 7 or more

20. Other students called me names.

___ Never ___ 1 or 2 times ___ 3 or 4 times ___ 5 or 6 times ___ 7 or more

21. I got hit and pushed by other students.

___ Never ___ 1 or 2 times ___ 3 or 4 times ___ 5 or 6 times ___ 7 or more

22. Other students excluded me from their clique of friends.

___ Never ___ 1 or 2 times ___ 3 or 4 times ___ 5 or 6 times ___ 7 or more

23. Other students excluded me from their activities.

___ Never ___ 1 or 2 times ___ 3 or 4 times ___ 5 or 6 times ___ 7 or more

24. Other students said bad things about me to other students at school.

___ Never ___ 1 or 2 times ___ 3 or 4 times ___ 5 or 6 times ___ 7 or more

25. In questions 18-24, if you checked that any of those things have happened to you – say for how long they have happened to you (check one).

- ☐ Never
- ☐ Less than a week
- ☐ It lasted less than a month
- ☐ It lasted almost all term
- ☐ It lasted about a year
- ☐ It has gone on for several years

26. How did you feel when these things were happening to you in school (check as many of these that reflect how you felt):

- ☐ I worried a lot about going to school.
- ☐ I was afraid to go to school.
- ☐ I was afraid while I was in school.
- ☐ I missed school because I was afraid.
- ☐ I felt physically sick.
- ☐ I felt bad about myself.
- ☐ I felt embarrassed and ashamed.
- ☐ I was angry at myself.
- ☐ I wanted to hurt the people who did these things.
- ☐ I felt alone
- ☐ I was very nervous.
- ☐ I would break out in a cold sweat while in school.
- ☐ I avoided places in school where I would be alone.
- ☐ I avoided going to the bathroom.
- ☐ I was unable to concentrate on my school work.
- ☐ I did badly on tests.



THANK YOU FOR COMPLETING THIS SURVEY!

